



**IFHE 2012**  
World Congress International Federation  
for Home Economics



INTERNATIONAL FEDERATION  
FOR HOME ECONOMICS



home  
economics Victoria



## International Federation for Home Economics **XXII World Congress** Global Wellbeing

Global creativity and innovation:  
Developing capacities for sustainable futures

**Monday 16 July — Saturday 21 July 2012**

Melbourne Australia [www.ifhe2012.org](http://www.ifhe2012.org)



## About International Federation for Home Economics

The International Federation for Home Economics (IFHE) is the only worldwide organisation concerned with home economics and consumer studies. It was founded in 1908 to serve as a platform for international exchange within the field of home economics.

IFHE is an international non-governmental organisation (INGO), having consultative status with the United Nations (ECOSOC, FAO, UNESCO, UNICEF) and with the Council of Europe.

## About Home Economics Victoria

The host organisation of IFHE World Congress 2012, Home Economics Victoria, was established in 1958 as a professional association for teachers and is the peak home economics organisation in the state of Victoria, Australia.

The organisation supports educators in empowering young people to live sustainably and take responsibility for their own physical, mental and social wellbeing. Their objectives, values, programs and publications can be viewed at [www.homeeconomics.com.au](http://www.homeeconomics.com.au).

## For further information

### International Federation for Home Economics

Email: [office@ifhe.org](mailto:office@ifhe.org)

[www.ifhe.org](http://www.ifhe.org)

### Home Economics Victoria

605/198 Harbour Esplanade  
Docklands VIC 3008 Australia

Telephone: +61 (0)3 9642 1061

Facsimile: +61 (0)3 9642 2418

Email: [office@hev.com.au](mailto:office@hev.com.au)

[www.homeeconomics.com.au](http://www.homeeconomics.com.au)

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[www.mcec.com.au](http://www.mcec.com.au)



**IFHE 2012**  
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## Session times (poster presentations) Level 1 (near room 106)

Code	Day	Session time	Set up time	Take down time
POST 1	Wed 18 July	9.30am – 12.30pm	8.30am – 9.30am	12.30pm – 1.30pm
POST 2	Wed 18 July	1.30pm – 4.30pm	12.30pm – 1.30pm	4.30pm – 5.30pm
POST 3	Thurs 19 July	9.30am – 12.30pm	8.30am – 9.30am	12.30pm – 1.30pm
POST 4	Thurs 19 July	1.30pm – 4.30pm	12.30pm – 1.30pm	4.30pm – 5.30pm

## Session times (textiles exhibits) Room 112

Code	Day	Set up time (Monday 16 July)	Take down time (Thurs 19 July)
EXHTEX	Tues 17 July – Thurs 19 July	4.45pm – 5.45pm	4.30pm – 5.30pm

## Session times (best practice exhibits) Level 1 (near room 107)

Code	Day	Session time	Set up time	Take down time
EXHBP 1	Wed 18 July	11.00am – 3.00pm	10.00am – 11.00am	3.00pm – 4.00pm
EXHBP 2	Thurs 19 July	11.00am – 3.00pm	10.00am – 11.00am	3.00pm – 4.00pm

Code	Description
BUS	Business, enterprise and industry
CDS	Consumers, financial literacy and sustainable development
EDU	Home economics education and training
FAM	Families and households
FDN	Food and nutrition
HEA	Health and health promotion
HTS	Household technology and sustainability
IHM	Institutional and hospitality management
PHIL	Philosophy of the home economics discipline and profession
TEX	Textiles and design
SYM	Symposium
WS	Workshop

## Symposia

Code	Title	Day	Block	Session time	Room
SYM MDG 1	The contribution of home economics to the UN MDGs	Tues 17	1	1.30pm – 3.00pm	106
SYM HEA 2	Victorian Department of Health sponsored symposium: Health interventions	Tues 17	2	3.30pm – 5.30pm	106
SYM HEA 3	What did we learn from the 3-11 disaster and how do we need to reconsider a sustainable life?	Wed 18	3	11.00am – 12.30pm	106
SYM FAM 4	Rhythms and practices in everyday life of families in transition (Part 1)	Wed 18	4	1.30pm – 3.00pm	106
SYM FAM 5	Rhythms and practices in everyday life of families in transition (Part 2)	Wed 18	5	3.30pm – 5.00pm	106
SYM FAM 6	Rural, low-income families in the United States: Public policies supporting employment	Thurs 19	6	1.00pm – 3.00pm	106
SYM EDU 7	Speaking out for home economics in the 21st century Australian curriculum	Thurs 19	7	3.30pm – 5.00pm	106

## Workshops

Code	Title	Day	Block	Session time	Room
WS EDU 1	Information and communication technology (ICT) in the home economics curriculum: An Australian perspective	Tues 17	1	1.30pm – 3.00pm	103
WS IHM	(IFHE program committee workshop) Seniors in rural and urban areas from a home economics perspective	Tues 17	2	3.30pm – 5.30pm	103
WS CSD	(IFHE program committee workshop) Sustainable development and home economics: practical approaches and resources for the classroom	Wed 18	3	11.00am – 12.30pm	103
WS EDU 2	Using non-linguistic teaching and learning strategies to build creative and innovative classrooms	Wed 18	4	1.30pm – 3.00pm	103
WS PHIL	(IFHE Council committee workshop) Developing the 'Partnerships for Home Economics Disaster Assistance to Developing Countries' project: An international collaboration	Thurs 19	6	1.00pm – 3.00pm	103
WS INT	International collaboration: co-operative approaches to global research projects	Wed 18	5	3.30pm – 5.00pm	103
WS OUT	(IFHE program committee workshop) Outreach: the important role of home economics in European countries	Thurs 19	7	3.30pm – 5.00pm	103

## Concurrent sessions

Code	Title	Day	Block	Session time	Room
BUS 1	Enterprise and entrepreneurship in home economics education	Wed 18	5	3.30pm – 5.00pm	101
CSD 1	Money management: family case studies	Tues 17	1	1.30pm – 3.00pm	101
CSD 2	Financial literacy: developing capacities	Tues 17	2	3.30pm – 5.30pm	102
CSD 3	Issues of consumerism and finance across cultures	Wed 18	4	1.30pm – 3.00pm	105
CSD 4	Consumer behaviour research	Wed 18	5	3.30pm – 5.00pm	110
CSD 5	Sustainable development: community knowledge and attitudes	Thurs 19	7	3.30pm – 5.00pm	101
EDU 01	Building the capacities of home economics educators	Tues 17	1	1.30pm – 3.00pm	105
EDU 02	Sustainability in the home economics curriculum	Tues 17	1	1.30pm – 3.00pm	102
EDU 03	Transforming the home economics message in higher education	Tues 17	1	1.30pm – 3.00pm	110
EDU 04	Evaluating home economics curriculum: Case studies from around the world	Tues 17	2	3.30pm – 5.30pm	110
EDU 05	Empowering the decision-maker: food skills, behaviours and capabilities	Tues 17	2	3.30pm – 5.30pm	104
EDU 06	Educational strategies for building capacities	Wed 18	3	11.00am – 12.30pm	104
EDU 07	Teacher attitude and competence: influences on curriculum	Wed 18	3	11.00am – 12.30pm	105
EDU 08	Rethinking the dimensions of home economics education	Wed 18	4	1.30pm – 3.00pm	110
EDU 09	Integrating technology into home economics	Wed 18	4	1.30pm – 3.00pm	102
EDU 10	Strategies and models for improving educational outcomes	Wed 18	5	3.30pm – 5.00pm	104
EDU 11	Education programs for building capacities: special needs students	Thurs 19	6	1.00pm – 3.00pm	101
EDU 12	A broader approach to home economics curriculum	Thurs 19	6	1.00pm – 3.00pm	110
EDU 13	Looking outwards: preparing students and educators for a diverse world	Thurs 19	7	3.30pm – 5.00pm	102
EDU 14	Building links between school and community	Thurs 19	7	3.30pm – 5.00pm	105
FAM 1	Families: negotiating changes in roles and relationships	Tues 17	2	3.30pm – 5.30pm	105
FAM 2	Balancing family roles and responsibilities	Wed 18	3	11.00am – 12.30pm	102
FAM 3	Research into parental roles and policies	Wed 18	4	1.30pm – 3.00pm	101
FAM 4	Challenges for families: perspectives from around the world	Wed 18	5	3.30pm – 5.00pm	105
FAM 5	Family influences on pathways and outcomes for individuals	Thurs 19	6	1.00pm – 3.00pm	102
FDN 1	Food technology research and development	Tues 17	2	3.30pm – 5.30pm	101
FDN 2	Influences on food choice	Wed 18	3	11.00am – 12.30pm	110
FDN 3	Promoting food security: global perspectives	Wed 18	4	1.30pm – 3.00pm	104
HEA 1	Snapshots of youth health status around the world	Tues 17	1	1.30pm – 3.00pm	107
HEA 2	Health and wellbeing across the lifespan	Tues 17	1	1.30pm – 3.00pm	111
HEA 3	Protecting the health of rural populations: Perspectives from two continents	Wed 18	3	11.00am – 12.30pm	107
HEA 4	Programs and strategies for better health: global case studies	Wed 18	4	1.30pm – 3.00pm	107
HEA 5	Exploring health and behaviours of young people	Wed 18	5	3.30pm – 5.00pm	107
HEA 6	Programs and interventions for childhood health and nutrition	Thurs 19	7	3.30pm – 5.00pm	104
HTS 1	Sustainable use of domestic appliances – design and behaviour	Tues 17	2	3.30pm – 5.30pm	111
HTS 2	Best practice in food preservation and laundry	Wed 18	3	11.00am – 12.30pm	111
HTS 3	Sustainable household fuels: implications for global wellbeing	Thurs 19	6	1.00pm – 3.00pm	111
HTS 4	Laundry technology	Thurs 19	7	3.30pm – 5.00pm	111
IHM 1	Issues in food services and hospitality	Thurs 19	6	1.00pm – 3.00pm	104
PHIL 1	Transformation in home economics: past and future	Tues 17	1	1.30pm – 3.00pm	104
PHIL 2	Building capacities through preservation of culture, knowledge and skills	Tues 17	2	3.30pm – 5.30pm	107
TEX 1	Preserving and reviving textiles traditions	Tues 17	1	1.30pm – 3.00pm	109
TEX 2	Sustainability in textiles: agendas, actions and markets	Tues 17	2	3.30pm – 5.30pm	109
TEX 3	Perspectives on the clothing industry	Wed 18	3	11.00am – 12.30pm	101
TEX 4	Technology of fabrics and fibres	Wed 18	4	1.30pm – 3.00pm	111
TEX 5	Selected issues in design and textiles: culture meets technology	Wed 18	5	3.30pm – 5.00pm	102
TEX 6	Textiles as a teaching tool for building capacities	Thurs 19	6	1.00pm – 3.00pm	105



Tuesday 17 July 11.15am to 12.30pm

Room  
The Plenary

Keynote presentation

## The International Federation for Home Economics impacting global wellbeing through professional action: A four-year review

**Professor Geraldene B Hodelin, PhD, CPHE**

(University of Technology, Jamaica; IFHE President 2008–2012)

### Summary

'Global wellbeing' as a philosophical perspective that is intended to influence the vision for professional practice must transcend the rhetorical and inform the everyday practice of home economists in their work. Individual home economists and organised home economics groups, once committed to the ideals of facilitating human betterment, have the capacity to adapt strategies and collaborate with allied professionals to become effective agents of change for the purpose of achieving global wellbeing in many dimensions of family living for personal and social growth. This quest requires a multipronged approach with each point of attack having a different focus and emphasis. This comes with the expectation of broad-based improved quality of life for all but especially for those individuals and groups whose life prospects are at best marginal. The results of this thrust should be measurable, observable and sustained and embrace global standards for success, yet culturally sensitive for comfort and acceptability.

The IFHE provides professional tools and opportunities for its members to discover and appreciate the many pervasive conditions to target for intervention that should lead to raised standards of living for each life touched. Professional actions that result in the continuing legitimacy of the discipline of home economics, as well as informing policies that impact the transformation of people in different circumstances, provide a sound indication of quality leadership of the IFHE organisation in contributing to improving the everyday lives of families and professionals globally. Strategic planning which embraced the well-articulated professional ideals, integrated with the globally accepted United Nations goals for human betterment becomes a defined set of rules to inform the specific action over a four-year period for IFHE members and groups. The recognised results provide a platform for informing continuing future professional action.

Tuesday 17 July 11.15am to 12.30pm

Room  
The Plenary

## Keynote presentation

### **Oikos: Bringing the economy home**

**Dr Vandana Shiva**

Founder of Navdanya International

#### **Summary**

'Oikos' is the Greek word for home. It refers to both our planetary home and to the particular places and spaces which are our homes, where we belong and live our daily lives. 'Oikos' is the root of both ecology and economy. Ecology is the science of the household or home, of ecosystems and species, of ecological processes that renew life on earth. Economy is supposed to be the management of the household.

However, the economy has lost its way and become separated from 'oikos', in its dual meaning of planet and place. Worse, it has become the reason for destruction of both. At the root of economy becoming anti-oikos are two artificially created boundaries, which I refer to as the 'creation boundary' and the 'production boundary'.

Both the creation boundary and the production boundary are false and artificial constructs that are at the root of the ecological crisis and the economic crisis. They are convenient to control the economy and knowledge, to grab resources, privatise the commons, sell a false story of progress. But they are highly destructive to our ecological survival and our wellbeing.

We need to bring the economy home to 'oikos' to address both crises.

To address the economic crisis, we need to get rid of the artificial production boundary which blinds us to the living economies that provide sustenance and wellbeing. We need to bring the economy home to recognise the creativity and productivity at the level of the household, sustenance economies, local economies and domestic economies. We need to bring it home from the global casino which has created a financial economy that is 70 times bigger than the real economy. We need to bring it home to the 99 per cent who are being excluded by the 1 per cent. We need to bring it home from greed to need.



Room  
The Plenary

## Keynote presentation

### **Creativity and innovation: The role of young professionals in sustaining home economics**

#### **IFHE Young Professionals Network**

##### **Amanda McCloat**

Chair of YPN, Head of Home Economics Department, St Angela's College, Sligo, Ireland

##### **Gwendolyn Hustvedt**

Assistant Professor of Textiles and Fashion Merchandising, Texas State University

#### **Summary**

This keynote is a conversation about how young professional home economists across the globe are working in their own communities to develop capacities for a sustainable future. It focuses on the creative and innovative approaches that young professionals are enacting to ensure that the core philosophy of home economics continues to be developed, strengthened and widely disseminated. The future of our discipline requires a fresh generation of professionals who identify themselves as home economists and are ready to build on the foundations of the discipline. Having a network such as that afforded to us by IFHE enables us to connect as professionals. When we connect with each other we influence and learn from each other in a way which simultaneously respects the essential nature of home economics as a dynamic system that seeks to capture the best of who we are; and importantly, which allows us to seek new and innovative ways to develop and expand the system in our daily lives as young home economics professionals.

For this keynote a selection of international young professionals have been brought together virtually to provide insights into their current creative and innovative work in the field of home economics. You will witness examples of young professionals who are working in each of the areas of practice of home economics: academics who are shaping the theoretical framework that home economics will use to move forward; family members who are using home economics as an arena for everyday living; young professionals who are teaching home economics as a subject and campaigners who are using transformative practices to advocate for healthy families and futures. The Young Professionals involved include:

Ireland – Amanda McCloat (Chair of YPN)

USA – Gwendolyn Hustvedt

UK – Emma Collins

Australia – Hannah McPhee

Finland – Anna Kosonen

Jamaica – Karen Manning-Henry

Africa – Anna Hoff

Japan – Setsuko Nakayama and Kazuki Yoshida

Canada – Emily Richards

Wednesday 18 July 9.00am – 10.30am

Room  
The Plenary

Keynote presentation

## Family financial sustainability through values-based financial education: Implications for home economics

**Dr Tahira K Hira**

Professor and Senior Policy Advisor to the president, Iowa State University

### Summary

This address starts with acknowledging the global financial crisis, and the interdependence of household financial wellbeing and the national financial wellbeing, outlining some known causes of the global financial crisis and discussing the role of individuals, businesses and the government.

The importance of financial literacy and capability education to address current financial issues will be established – then a case will be made for an integration of financial education with a deeper cultivation of fundamental values along with social education and inclusion. Dr Hira will then explore the role of comprehensive financial education in preparing individuals to better cope with the next financial crisis.

She will argue that financial education should change to be more effective in promoting values, beliefs and behaviours that are necessary for making informed and responsible decisions leading to the majority of individuals and households feeling financially secure. The role of family and parents will be highlighted in this process.

It will be shown that home economics is exactly the field that can meet the challenge presented to individuals, families and the society in the current financial environment; the field has what is needed to develop appropriate educational programs, engage parents, build stronger communities, train teachers, and conduct impact assessment research.

These times demand a revolution in thought, as well as new ways of improving our own financial behaviours and new approaches to teaching resource management and personal finance courses with much more emphasis on personal values and responsibilities. We must create an environment in which people have the opportunity to make positive decisions and are able to make decisions because they had the appropriate attitude, knowledge and skills. We must take charge of teaching management of personal finance to our children and to the students in our programs.

Thursday 19 July 10.30am to 12.00pm

Room  
The Plenary

## Keynote presentation

### Education and capacity building

**Dr Gwang-Jo Kim**

Director, UNESCO Regional Bureau for Education in Asia-Pacific

#### Summary

The world continues to change rapidly in the 21st century with people living longer, children being healthier, and populations being more mobile within and across borders. Changes are also evident in the way we live, work and interact with each other. Education is a powerful and effective means to equip the young and old with the skills and creativity needed to adapt to these changes and meet escalating demands on the world's finite resources. The whole spectrum of education – from early childhood to higher education, in formal and non-formal settings – should not only prepare people for the world of work, but also inculcate in them the values and practice of lifelong learning, responsible citizenship, sustainable development and harmonious co-existence – elements all vital for quality living.

Home economics encompasses a broad range of disciplines to promote quality and sustainable living for individuals, families and communities. Underlining the importance of lifelong learning, Home economics also offers many opportunities and pathways for building capacity and professional development.

In guiding and shaping the global education agenda, UNESCO is mindful of the need to consider the connections between education and societal development. Much of UNESCO's work is focused on creating platforms to facilitate sharing of information, encouraging dialogue and conducting analytical studies that will lead to better policy formulation and implementation of effective educational programs.

Room  
The Plenary

## Keynote presentation

### What can we do to recover sustainability?: Challenges in rebuilding lives in the wake of disaster

#### **Yukiko Kudo**

Chief Senior Specialist for Home Economics, Ministry of Education, Culture, Sports, Science and Technology, Japan

#### **Summary**

A crucial time has come to revisit our longtime call for building a sustainable society. In the wake of the 3/11 east Japan great earthquake, the vulnerability and uncertainties of contemporary society surfaced and tackling universal and critical challenges for rebuilding our society have become more urgent.

This presentation discusses: 1. Impact of the disaster on Japanese society; 2. Key elements for reconstructing sustainable societies; 3. Ways to build capacities; and 4. Challenges for home economics.

The earthquake posed serious questions concerning relationships between human societies and nature, the vulnerability of basic infrastructure of our lives, and the overly fragmented and specialised body of knowledge that cannot holistically capture our lives. The following elements play a key role in answering these concerns:

- A comprehensive approach – issues in life are interrelated and a comprehensive understanding and approach is required to build/capture ways of life
- Optimal balance – skills and knowledge necessary to create, maintain and recover optimal conditions among individuals, families, communities and society
- Mutual relationships – forming and strengthening mutual relationships to connect people, time and space
- Autonomy – building abilities to independently judge and respond under extreme circumstances.

The challenges facing education are substantial. Home economics can nurture, develop and strengthen capacities, and is expected to do so more than ever. Home economics, with its value of protecting lives, and its comprehensive and coordinated approach, is expected to play a leading role in redirecting our lives toward sustainability.

Friday 20 July 1.00pm to 2.30pm

Room  
The Plenary

## Keynote presentation

### ‘This is the life’: Being a home economist

#### **Jody Vassallo**

Food writer and publisher, food stylist and consultant

#### **Summary**

At the ripe old age of 26 I enrolled at East Sydney TAFE to be trained as a home economist. I am now much older and that humble occupation has taken me around the globe and opened doors I could never have imagined walking through back then.

I don't *work* as a home economist, I *am* a home economist and am unbelievably proud of that fact. Never will I allow myself to be passed off as a chef as we are fundamentally different occupations. I have written over 30 books, started my own publishing company, headed up the food department in one of the world's most successful food publishers, taught elite athletes, yogis, diabetics and coeliacs how to cook, styled restaurants in 5-star resorts, worked with large food manufacturers to develop healthy snack bars, breads and soups, written healthy room-service menus for a major hotel chain, and found total joy in being a home economist.

I am now honoured to work as a food consultant for Jamie's Ministry of Food Australia while continuing to operate my own freelance business as a home economist.

Some believe I have the best job in the world. If you are born to multi-task and have been known to pull a rabbit from a hat or at least have the ability to find someone who can – then this is the life for you. I have been mentoring young home economists for the last 10 years and I am yet to find one who has hung up their apron and moved into a different field. I am constantly amazed at the diversity this profession offers not just to me but to all of my peers.

Friday 20 July 1.00pm to 2.30pm

Room  
The Plenary

## Keynote presentation

### **The intention of home economics education: A powerful enabler for future-proofing the profession**

**Dr Donna Pendergast**

Dean and Head of School, Griffith University

#### **Summary**

Home economics education is an important enabler for achieving preferred futures. With the benefit of predicted megatrends, there is an opportunity to shape the future of the profession to connect explicitly with the strategies and capabilities that are required for setting the compass towards a sustainable future for the profession. Following are the key points developed in this presentation:

- The intention of home economics education is to empower individuals and families to optimise their wellbeing and to develop lifelong learning attributes.
- These intents connect strongly with worldwide agendas about the importance and value of education.
- Little explicit evidence exists to validate the claims made by the home economics profession of its intended learning outcomes.
- Opportunities to validate the profession must be a priority for the profession, offering the means to undertake research that investigates the degree to which home economics education achieves its stated intents associated with wellbeing and lifelong learning.
- Recognition by those external to the profession of the valued contribution, for example the food literacy exposé, are important for gaining validation.
- Rebranding the name 'home economics' is an important strategy for setting a future path for the profession.

## Symposium

Room 106	<b>SYMMDG 1 Home economics and the UN Millennium Development Goals: A global perspective</b>
Chair	<b>Dr Geraldene B Hodelin</b>

Key aspects/outcomes of the IFHE MDG position papers and the vision of home economics after 2015: changes and challenges in following up the UN MDGs

**Dr Geraldene B Hodelin** (IFHE President, University of Technology, Jamaica)

The Americas

Poverty, hunger and inequality: achievements and challenges

**Dr Anke Niehof** (Wageningen University, Netherlands)

Europe

Gender inequality as a key challenge to achievement of the UN MDGs: A home economics perspective

**Dr Sidiga Washi** (Ahfad University for Women, Sudan)

Africa

Health and the UN MDGs: why should health and wellbeing be the focus of post-2015 goals from a home economics perspective?

**Vulori Sarai** (School of Education, University of the South Pacific, Fiji)

The Pacific

Home economics and sustainability: the relevance to the follow-up on the UN MDGs after 2015

**Dr Midori Otake** (President of the Japan Association for Home Economics)

Asia

As a longstanding UN international non-government organisation (INGO), the International Federation for Home Economics is in a position to contribute internationally in a variety of ways to reach the UN MDGs. In 2010/2011 the IFHE developed and published the IFHE Position Statements related to the UN Millennium Development Goals. Because of the high relevance of the theme the IFHE decided to conduct a roundtable discussion at the 2012 World Congress in Melbourne, Australia, which establishes a chance to discuss chosen topics on the UN MDGs from a home economics view, with excellent experts. This will open new perspectives and facets on the correlation of home economics and the UN MDGs. The aims of the roundtable discussion are:

1. To point out how the UN MDGs can be reached more efficiently from a home economics perspective
2. To highlight the contribution of home economics and home economics associations to reaching the UN MDGs
3. To define which aspects should be added to a new set of development goals after 2015 from a home economics perspective to influence the follow-up process of the UN MDGs.

The results are expected to be a great support for the work of IFHE at the UN and in publicity as well as for the future work of its members. The focus of the discussion will be:

1. Eradication of poverty and hunger
2. Health
3. Gender
4. Sustainability.

## Workshop

Room 103	<b>WS EDU 1 Information and communication technology (ICT) in the home economics curriculum: An Australian perspective</b>	
Chair	<b>Sandra Fordyce-Voorham</b>	Australia
Presenters	<b>Sandra Fordyce-Voorham</b> (Mentone Girls Grammar School, Victoria) <b>Leanne Compton</b> (Victorian Department of Education and Early Childhood Development) <b>Dr Janet Reynolds</b> (Home Economics Institute of Australia, Queensland) <b>Hannah McPhee</b> (Marist-Sion College Warragul, Victoria) <b>Louise Borg</b> (St Aidan's Anglican Girls' School, Queensland)	

This session will provide an overview of the information and communication technology (ICT) access in Australian schools, with a focus on the Australian government's Digital Education Revolution and the National Secondary School Computer Fund (NSSCF). The NSSCF has enabled all Australian students in years 9–12 (aged 15–18 years) to have access to their own digital device. The 'how and why' of one-to-one learning, whereby each student has access to his/her own device, will be debated, and the immense opportunities for optimising learning and teaching in the classroom will be showcased. There will also be dialogue about the ICT professional learning for home economics teachers that has been rolled out in two Australian states. We will discuss the management and implementation of these professional learning programs, in addition to strategies employed to cater for a wide range of abilities, as well as how to effectively reach teachers across an enormous geographical area. We will also highlight the lessons learnt to inform the future direction of appropriate and sustainable ICT professional learning for home economics teachers. We will finally focus on ways ICT is being implemented effectively in the home economics classroom in Australia. We will discuss the ICT general capabilities in the Australian Curriculum and highlight ways that these ICT capabilities can be evident in contemporary home economics practice. We will showcase FoodChoices, a dietary analysis software package, which has been complemented with a range of online teacher and student curriculum materials, to support blended learning in the home economics classroom. In addition, we will discuss strategies used to provide professional development to home economics teachers so that they become confident and competent users of this program - these strategies can be applied to other uses of ICT in the classroom. Practising home economics teachers will discuss ways that they are using ICT to optimise learning and teaching, with a focus on collaboration, communication and creation in the contemporary home economics curriculum. Other simple, practical ICT ideas that support home economics practice will be showcased. All home economics teachers from around the world will gain an understanding of how ICT can be easily implemented into their classroom practice. There will be lots of practical examples and time to ask questions along the way.



## Concurrent sessions

Room 101	<b>CSD 1 Money management: family case studies</b>	
Chair	<b>Patti Fisher</b>	

114	<b>The attitude of Nigerian working class women to cutting home management costs in a challenging economy</b>	
Lead author	<b>Abigail Olugbamigbe</b> (Adeyemi College of Education)	Nigeria

Within the context of a global economic recession the average citizen of the Third World falls substantially below the poverty line. The family faces severe crippling challenges in its ability to meet the basic necessities of the family members. Even the most basic primary needs of food, clothing and shelter become visibly threatened. It then falls to virtually all the women to cut household costs. This study examines the efforts and attitudes of women in their bid to cut costs. Two hundred working-class women selected across such fields as teaching, nursing, secretarial work and related disciplines are to participate in the research. Data is to be collected through a Likert format questionnaire and inferences are to be drawn through simple percentages and t-test analyses.

411	<b>Money management practices among husband and wife: A case study of Umudike community in Ikwuano LGA of Abia State, Nigeria</b>	
Lead author	<b>Anthonia Obeta</b> (Michael Okpara University of Agriculture)	Nigeria
Co-author	<b>Esther Osahon</b> (Michael Okpara University of Agriculture)	

The study investigated the money management practices of husbands and wives living in Umudike community, Nigeria. The study adopted a survey research design. Three research questions guided the study. A structured questionnaire was employed for data generation. The targeted population (Umudike community) was stratified into three blocks according to their residential areas. Using simple random sampling techniques 50 couples were selected from the three blocks (a husband and wife) making a total of 100 subjects responding to the questionnaire. The data collected were analysed using frequencies and percentages. The major findings of the study reveal that 87% of the subjects were married monogamously while 13% were polygamously married. Sources of family finances include the husband, wife, children and extended family. Methods of budgeting vary with families but the majority budget monthly. The method of finance control also differs with families. In some homes the wife keeps only feeding money while the husband keeps money for other expenses and savings. Some husbands allow their wives to take custody of all money except savings. In some polygamous homes, the husband keeps the feeding money for fear of generating trouble among the wives while some make the first wife the finance controller and subsequent wives made her subordinates. It is recommended in this work that housewives should be allowed to control at least money for feeding the family. This is more economical and makes the housewives feel belongingness and participation in the affairs of the family. In polygamous homes, the husbands should create an atmosphere where each wife controls some part of the family finance especially that meant for feeding.

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## Best practices for developing capacity of individuals and families to maximise resources to sustain financial wellbeing

Lead author **Estoria M Maddux** (Kansas State University)

United States

This paper presents strategies for developing the capacity of individuals and families to understand and change resource management actions to move toward rather than away from financial wellbeing. Tools are included that provide a way for individuals and family members to observe and assess how they form their personal interactions when using resources which prevent them from sustaining positive financial outcomes. The paper provides a structure to guide individuals and families in developing their ability to identify and replace self-defeating behaviour patterns with life-enhancing behaviour patterns to create better financial outcomes. Building personal capacity for creating positive quality of life is achieved by guiding the individual in coming to believe that he or she has the right to have personal needs met or that others have the right to have their needs met. Types of strategies used to motivate behaviour change depend on the direction and severity of the dysfunctional pattern that is expressing within an individual or family unit. Strategies for building ability to manage resources to create more positive outcomes include teaching individuals or families to focus attention within, to connect within to define and express what is needed by the self, and communicate with others involved to determine and define what is needed by the whole. Once the individual or collective need is identified, those involved are guided in developing the ability to identify the tasks needed to meet a need, identify how to obtain resources to meet the need, identify who has a part in helping meet the need, identify timelines for completion, take the action, and assess outcome to determine whether to terminate, continue or correct behaviour depending upon whether the need is continuous or episodic. Balancing ownership of responsibility and allowing each person to do his or her part is important in creating positive wellbeing for all involved. Practices for developing capacity include: complete a chart to increase self-awareness of what happens in a situation where self-defeating behaviour expresses and conflict occurs; identify reasons for expressing behaviour in self-defeating formation; examine how self-defeating behaviour impacts resource use and relationships; identify benefits and costs of self-defeating behaviour; identify strategies that can limit self-defeating behaviours and increase life-enhancing behaviours; observe and recognise triggers that sustain self-defeating behaviours; identify positive substitutes to deal with urges; identify and practice life-enhancing activities to replace self-defeating activities; develop realistic goals and tasks; develop coping strategies to deal with slips to self-defeating behaviour; and practise positive-self talk.

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## Elder financial exploitation: The impact on families of this growing global problem

Lead author **Virginia Vincenti** (University of Wyoming)

United States

Co-authors

**Dr Karen Goebel\*** (University of Wisconsin, College of Human Ecology)  
**Dr Cynthia Jasper** (University of Wisconsin, College of Human Ecology)  
**Dr Jeanne Hogarth** (Federal Reserve Board)  
 \*co-presenter

For years I suffered silently, unable to muster the courage to seek the help that I knew I needed. Even when I tried to speak up, I was silenced. It seemed like no one believed me. I felt trapped, scared, used and frustrated ... above all I felt helpless'. Actor Mickey Rooney opened a 2011 US Senate hearing with this testimony. Rooney is among the increasing number of victims nationally and internationally who suffer each year from financial abuse by a family member authorised to handle their affairs (power of attorney), a problem destined to increase as the elder population (over 60 years) is predicted to be two billion by 2050. Financial exploitation, the third most frequent form of elder abuse, is defined as the illegal or improper use of an adult's resources for another's profit or advantage. Power of attorney financial elder abuse is committed mostly by relatives. Due to increasing longevity, rising rates of dementia, and growth of the global population, this world-wide issue needs to be addressed (Canadian Centre for Elder Law 2008; UN Follow-Up to Second World Assembly on Ageing Report of the Secretary-General 2010; UN Human Rights Council 2011). Women, especially those over age 70, isolated, suffering from one or more impairments are among the most vulnerable. Non-reporting is estimated to be as high as forty-four cases for everyone reported, thus preventing hard data collection. Underreporting stems from shame, close relationships with the perpetrator, fear of isolation, lack of awareness of exploitation and unfamiliarity with resources and remedies. Warning signs of abuse include anxiety about finances, confusion about missing funds and sudden changes in financial/legal documents such as will, deeds and titles, bank and investment accounts, trusts, and powers-of-attorney documents. This session will help attendees understand family experiences and impacts. This study used an adaptation of Seidman's (1998) protocol for phenomenological interviewing. It employed the following three-part interview structure intended to help participants understand and

make meaning of their experiences: familial and contextual background; details of the experience; and impact on the family. Preliminary findings relate to the power of earlier family relationships, questionable attorney actions, difficulty in getting assistance, insights into long-term family consequences, and lessons learned. Those who may benefit from this qualitative research include elders and their families, family/community educators, counselors/therapists, policymakers, and victim advocates.

Room 102	<b>EDU 02 Sustainability in the home economics curriculum</b>
Chair	<b>Oddhild Bergsli</b>

44	<b>Sustainability in home economics in Norway</b>	
Lead author	<b>Ingebjorg Aarek</b> (University of Agder)	Norway
Co-author	<b>Anne Selvik Ask</b> (University of Agder)	

#### Aim

The aim of this study is to find out to what extent education in sustainability is integrated in home economics in the Knowledge Promotion Reform (KPR), and in the new plan for teacher training. The basis for education in primary and secondary schools in Norway is set down in the KPR. The KPR describes education on different levels, and presents all goals and competence aims that should be reached by the pupils. A new plan for teacher training was implemented in 2010 and the first students to follow this plan were accepted in August 2010.

#### Method

In this study, we examine how sustainability is included in home economics in the KPR, and in the new curriculum plan for teacher training. Further we investigate how home economics teachers implement sustainability in their teaching by asking a pilot group of home economics teachers in primary school to answer a questionnaire about their teaching of sustainability and how they cooperate with the pupils' families in this area. The study will be extended to include a larger number of teachers. We will also interview a small sample of the teachers.

#### Results

The general part of the KPR has a chapter on the environmentally-aware human being. Sustainability is also topic in several subjects in the KPR, including home economics. The role of home economics is discussed especially. The findings from the new plan for teacher training will also be presented. The results from the questionnaire sent to the home economics teachers will be presented and discussed.

#### Conclusion

Sustainability is part of the KPR and is included in home economics as well as in other subjects. In home economics one competence aim is: 'Assess and choose foodstuffs based on ethical and sustainable criteria'. The reform states: The interplay between economy, ecology and technology must make unique demands, scientific and ethical, on our age, if we are to ensure sustainable development. Education must therefore provide a broad awareness of the interconnections in nature and of the interplay between humans and nature. The plans for teacher training have sustainability as a theme.

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### Teaching for sustainable futures: How Victoria addresses sustainability in the senior secondary home economics curriculum

Lead author	<b>Nerida Matthews</b> (Victorian Curriculum and Assessment Authority)	Australia
Co-authors	<b>Chrissy Collins</b> (Greensborough SC) <b>Lorraine Tran</b> (Victorian Curriculum and Assessment Authority)	

This session will focus on the approach taken by Victoria to develop students' knowledge, skills and attitudes to promote sustainability. In 2008–2009 the Victorian Curriculum and Assessment Authority undertook an analysis of Victorian Certificate of Education (VCE) curriculum in relation to sustainability and environmental issues. Curriculum documents were audited in terms of explicit reference to the environmental, social/cultural and economic dimensions of sustainability. One of the outcomes of this audit was a greater focus on the inclusion of sustainability in a range of studies in VCE curriculum. Sustainability concepts are prominent in the VCE curriculum, as evidenced in the home economics studies of Food and Technology, Health and Human Development, and Product Design and Technology. This session will highlight:

- the research process undertaken to map sustainability concepts in the senior secondary curriculum
- the opportunities for incorporating sustainability in the senior home economics curriculum
- considerations for designing a curriculum that promotes sustainable futures
- a perspective for teachers on how the curriculum translates into classroom practice.

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### Living greener: Using technology to create learning environments to reach millennials

Lead author	<b>Sharon Gibson</b> (University of Georgia)	United States
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In this paper the authors focus on ways extension educators can use technology to engage young adults, specifically Millennials (born 1977 to 1990), in living greener. Extension Outreach Educators need to adapt traditional outreach educational tools to interface with current technology and connect with audiences that rely on the internet to solve problems. The majority of adults (66%) have a broadband internet connection at home, with only 21% of adults reporting that they do not use the internet at all (Smith 2010). Accessing the internet on wireless devices has grown significantly, especially for those under 49 years of age (Lenhart, Purcell, Smith & Zickuhr 2010). Wireless devices provide easy access to the Internet at a relatively affordable rate. Understanding Millennials and their predilection for instant access to information helped in the development of the UGA GreenWay website ([www.ugagreenway.com](http://www.ugagreenway.com)) along with the UGA GreenWay Facebook pages, e-zine and Twitter account. The website was designed as an information-portal on: living greener; reducing the number of household chemicals used in one's home; 'Green/Socially Responsible' investing; recycling; reducing consumption; and community engagement related to green and healthy living. Social networking tools are used to promote outreach and deliver living-green messages along with healthy homes information. Project leaders recognise that measuring outcomes can be challenging for online-outreach projects; however, web page hits, Facebook fans, Twitter followers and online activities provide some insights. A major challenge has been increasing awareness of website and social networking sites. The team continues to experiment with new ideas to expand their ability to connect with the target population. The team engages students in the development process. Students have been employed to assist in content development for the UGA GreenWay YouTube channel, website changes and applications and podcast development. Engaging students in the development process helps to maintain content relevance and pushes team leaders to expand their knowledge and skills related to changing technology. Face-to-face programs continue to be Extension's primary delivery method. Between January 2010 and April 2011, University of Georgia (UGA) Family and Consumer Sciences Extension Agents provided green and healthy homes programs for 222 consumers. Face-to-face delivery limits audience reach. It is the intent of the authors to demonstrate that Cooperative Extension can expand their reach by increasing their use of technology, particularly smart phones and tablets and through collaborating with the intended audience to develop content and identifying preferred modes of communication and learning.

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## Food education with the Stephanie Alexander Kitchen Garden Program

Lead author

**Stephanie Alexander**

Australia

The Stephanie Alexander Kitchen Garden Foundation is growing a food revolution from the ground up! We are not only changing the way children approach and think about food, but how they engage with their environment. Children are enthusiastically getting their hands dirty and learning how to grow, harvest, prepare and share fresh, seasonal food. Students learn empowerment through the healthy, sustainable and positive choices they can make for personal and community futures. Inevitably this movement in primary schools will impact and have consequences for secondary education.

Room  
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## PHIL 1 Transformation in home economics: past and future

Chair

**Donna Pendergast**

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## Two women named ‘the first’: A study of Kerstin Hesselgren, Sweden, and Ellen Swallow Richards, USA – two pioneers in home economics

Lead author

**Karin Hjalmeskog** (Uppsala University)

Sweden

In this paper two pioneers are in focus, Ellen Swallow Richards home economist, and scientist, born in 1842 and Kerstin Hesselgren, Swedish home economist, sanitary inspector, and Member of Parliament, born in 1872. They were both named the first, Hesselgren because she was the first sanitary inspector in Sweden as well as one of the first women to be elected member of parliament in 1921 (Hamrin Thorell et al 1968); Ellen Swallow Richards because she was the first to attend as well as graduate from MIT (Thompson 1994). There are several similarities but also crucial differences between these two women, who in their respective countries argued for education in home economics. In this article I want to elaborate those similarities and differences. I want to elaborate their experiences in their historical context in society as a whole and in educational, political and public in particular. The method used in the study is discourse analysis inspired by pragmatic view on knowledge. This means that the purpose of the study is significant (Säfström & Östman 1999; Hjalmeskog 2000), and that truth is regarded as arguable (ibid; Cherryholmes 1988). Texts analysed are from lectures given by Kerstin Hesselgren and writings by Ellen Swallow Richards. Both Swallow Richards and Hesselgren first got their education at home but there the similarities according to their own education ends. Swallow Richards graduated in chemistry at MIT and Hesselgren gave up her idea on becoming a medical doctor and thus her academic education and instead became one of the first who studied home economics in Sweden. Both used their knowledge and capabilities as practitioners and both urged for pragmatic, democratic solutions to the social and technical problems following in the footsteps of industrialisation. The analysis highlights that they saw education, including home economics education, as one important contribution to solving the problems. One crucial difference is that Swallow Richards created her first course in home economics as coeducational, while Hesselgren saw home economics education as women's education. It was to either fulfil their calling as housewives or working in the ‘soft’ areas of the labour market. Another crucial difference is that while both saw home economics education as important, only Swallow Richards highlights the scientific merits of home economics.

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## Transforming the home economics message as a part of higher education

Lead author **Kaija Turkki** (University of Helsinki)

Finland

### Aim

This paper is built on the discussion and results of the IFHE World Congress and the 100 Years Celebrations in Lucerne in 2008. The key focus is the IFHE Position Statement (HE21c) and the reactions published and reflected. This paper aims to define further the key messages of the HE21c based on the articles and exam papers of young professionals; and to reflect the interpretations of home economics in relation to the current European and international discussion in renewing and restructuring higher education.

### Method

The data includes ten articles published in IJHE and related journals during 2008–2011, and 30 reflection papers written by home economics students at Master's and doctoral levels who participated a philosophy oriented course focusing on wellbeing and education for global responsibility. Students were invited to draw a picture of their knowledge base in home economics and their professional positioning in society. The articles were connected to the HE21c, and their role was to produce the frame for the content analysis.

### Results and conclusion

The basic results inform the variety of interpretations the HE21c can stimulate and generate further, but also confirm several core strengths and challenges home economics encompasses in the present world. The value of understanding our professional history is clearly stated. The final results are introduced in the format of five steps for the future based on strategic planning and visionary management. This frame works as an innovative tool for others to build their own solutions at national and regional levels. Higher education is in transition worldwide. In several European countries university structures and research infrastructure have been renovated during recent years. The nature of these discussions is very international and globally oriented. Besides, the debate is strongly united to societal changes, to global crisis and the state of global wellbeing and sustainable futures. This is the point for home economists to reposition our challenges and to restructure our higher education studies and research to be part of these discussions. We do have our role to play. This article brings some evidence that home economics includes plenty of resources to remain as an influential contributor in these discussions, and the analysis of youngsters' own ideals reveal that their positioning in society can be something different and inspiring.

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## Standards as context for reform: Building capacity and sustainability through home economics education

Lead author **Barbara Woods** (East Carolina University)

United States

Strong evidence supports the need for education focused on nurturing human development with schools identified as key to such efforts. At the same time, a lack of consensus on positive youth outcomes has been cited as undermining our capacity to raise healthy, high-achieving children (Moore & Halle 2001; Cohen 2006). Such issues concerning preventive education as means to building capacity and sustainability are central to the field of home economics. In the US, Family and Consumer Sciences Education (FCSE) National Standards were developed to reflect foundational knowledge, skills, and dispositions essential for effective functioning in one's personal, family, career, and community life (NASAFACS 1998). These standards are based on a vision of emancipatory education with the intent of fostering positive development. However, with the focus of US education reform and accountability on math and reading, FCSE has been increasingly marginalised and experienced serious decline in secondary schools (Chadwick 2004; Madsen 2004). Providing increased and equitable student access to learning opportunities related to the FCSE Standards would require significant policy and institutional reform. Research demonstrates that the attitudes and perceptions of key stakeholders are central to the success of any reform initiative (Fullan 2001; Huberman & Miles 1984). The FCSE standards can serve as context for such public discussion, engaging key stakeholders as means to support and advance reform. The purpose of this study was to explore the attitudes and perceptions of educational leaders concerning the efficacy of FCSE national standards to serve as an empowerment model for youth development in public education. The target population for the study was secondary school principals in the US during the 2009–2010 academic year. Data was collected on the FCSE national standards with respect to: 1. importance of student access to learning opportunities; 2. estimate of current student access; and 3. support for increasing student access. Findings indicate high attitudinal levels of importance, perceptions of minimal or inadequate student access, and strong support for increasing student access. These findings provide evidence of support among key stakeholders for increased and equitable student

access to learning opportunities associated with the standards. Promoting continued engagement of key stakeholders and public discussion of the FCSE standards may enhance our capacity to meet the developmental needs of the next generation, thereby improving quality of life for all.

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## Strike while the iron is hot: Home economics and online media

Lead author **Jay Deagon** (HomeEcConnect)

Australia

This paper looks to our past and finds inspiration for our future. The role of media in spreading messages that legitimise home economics has plagued the profession for over a century. Is it coincidental that a passage from the 1901 Lake Placid conference papers can be directly quoted today and still hold relevance? Editor of the Boston Cooking School Magazine, Mrs Janet Hill, wrote 'The chief concern of thoughtful men and women today is for the physical, practical and economic welfare of the community. In the attainment of these results journalism in the past has played a conspicuous part, but the science of home economics has not yet been considered seriously; the latest thought is looked on as food for a reporter's "story" or the filling of so much space'. A recent analysis of media messages in online news revealed that it still would seem home economics is just media 'filling'. Using a few examples of recent media activity, this paper explores ways that our profession could harness internet technology and the media to help influence public perceptions about home economics in 21st century society.

Room  
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## EDU 01 Building the capacities of home economics educators

Chair **Anna-Lise Stroejer**

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## Creating a local network

Lead author **Gabrielle Costin** (Catholic College, Sale)

Australia

Co-author **Hannah McPhee** (Marist Sion College, Warragul)

Do you ever feel isolated in your work at your school? Are you located in a remote area with little support for your subject area? We found a way to deal with those problems. As members of the Gippsland Food and Technology Teachers' Network we will present the activities of our group and give advice regarding setting up a local network in your area. We have formed a local network of Food and Technology teachers (a senior home economics subject in Victoria, Australia) who collaborate and support one another in curriculum documentation and setting assessment tasks, practical activities, report writing and general collegiality. This has given individual teachers the confidence to deliver a comprehensive curriculum for all levels of secondary education in food and technology, nutrition and health. It provides the opportunity for teachers to discuss the changing face of education with the technological revolution and what this means for our subject areas. We realised there was an increasing need for effective communication among teachers from Gippsland schools and found that we could accomplish more as a group than in isolation. Gippsland is a vast geographical area and we travel long distances to come together as a group once a year for face-to-face group collaboration. It has become an event not to be missed and strong friendships have been made in the process. Our network has empowered us as teachers to make connections and share ideas and we would now like to share those benefits with other groups.

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## Teachers' collaboration in developing the teaching of home economics

Lead author

**Hanna Kuusisaari** (University of Helsinki)

Finland

### Aim

The research focuses on collaborative teacher learning as part of an in-service education course that supports home economics (HE) teachers in creating new knowledge and practices for home economics teaching. The research aim is to analyse the process of collaborative knowledge creation in the in-service education course and connection of theoretical concepts and everyday practices in that process. In Finland, the latest national curriculum commits all comprehensive and upper secondary school teachers to develop their teaching toward the constructivist and socio-cultural theories of learning. In addition to the demands of the new curriculum, homes and society also have changed. Thus, the changes affecting home and social life are a challenge also for home economics as a school subject and for methods for teaching it. In order to help teachers to develop their teaching according to the features of the new curriculum, a long term in-service education course was arranged for HE teachers.

### Methods

The research data consists of videotaped discussions of two teacher teams creating knowledge and work practices during the in-service education course meetings. The transcriptions of data are the basis for the analysis. Methodology of this study is theory and data-based systematic qualitative content analysis.

### Results

The episodes of topic talk are the basic units of the research. The data driven meaning type analysis shows that development emerged in teachers' discussions and was defined as developing talk. The analysis of how development of ideas is connected to learning theories shows that theoretical knowledge is used in different ways. Research results show how theoretical knowledge can be used or left unused and indicate that creating and changing teaching practices is challenging. Nevertheless, the connection of theoretical concepts and everyday practices is possible in the collaborative knowledge creation process and through this it is possible to develop new teaching practices.

### Conclusion

The evidence of this research supports the idea that the organised in-service education facilitated teachers in bridging theory-practice division in collaboration, and helped to put the learning theories into practice. It seems that facilitating teacher collaboration is essential for the development of teaching. Thus, the research continues and the aim of this future research is to analyse collaboration by focusing on the trajectories of ideas and social interaction within HE-teacher groups. Further qualitative research on the patterns of interaction in group discussions would reveal deeper understanding of the development of teaching in collaborative knowledge creation settings.

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## The use of technology for home economics teaching training

Lead author

**Eva Krokidi** (School advisor, Western Greece)

Greece

My duties as a school advisor to home economics teachers in sixteen prefectures of Greece are related to educating, training and informing in general about home economics issues within the scientific field as well as the area of the International Federation for Home Economics. To do so, it is important to travel and arrange teachers' meetings at schools, which has become very difficult in current financial times. Thus, and due the size of the area covered by my work, it has been decided that we should operate in a different way, by using the advantages of technology. A special educational virtual class is now open to everyone teaching home economics around Greece. Through this, all teachers can attend a special class, which operates every two weeks at a specific time. They are able to watch a teacher, or the school advisor herself, who is officially responsible for their training, making presentations on a specific theme in home economics in general, or on special needs in the teaching of home economics. The didactics of home economics is a basic part of that virtual classroom. In this presentation, I will be able to show the virtual classroom to the audience, explain how it works and demonstrate how technology and ITC could be used in order to offer the best outcomes when it comes to home economics teacher training.



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## Aspiring to leadership by harnessing home economics skills

Lead author	<b>Louise Gunther</b> (Avila College, Melbourne)	Australia
Co-author	<b>April Honeyman*</b> (St Columba's College, Melbourne) *co-presenter	

Home economists are recognised for their strong management and leadership skills and for taking control of their lives in order to become empowered independent citizens. While home economics as a profession around the world has been marginalised by those who do not understand or appreciate its value, the skills of home economists continue to be acknowledged as unique to the profession. This session will explore the opportunities for home economics teachers aspiring to leadership positions within the secondary education sector and how harnessing the unique home economics skills of management, values clarification, critical thinking, decision-making, goal setting and resource utilisation can assist in obtaining positions of leadership. This session will also draw upon the personal experiences of two home economics educators currently employed as principals in two leading Catholic secondary girls' schools in Melbourne, Australia. Both women embrace their home economics training as they guide the learning and impact on the lives of the young women in their schools, encouraging them to lead empowered lives and achieve their potential.

Room  
107

## HEA 1 Snapshots of youth health status around the world

Chair	<b>Jane Norton</b>
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40

## Health promotion through physical fitness among young women

Lead author	<b>Manjusha Bhakay</b> (SMRK Mahila Mahavidyalaya)	India
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### Aim

The study was undertaken to evaluate the physical fitness level of young women as by this age physical development is complete and in the near future these girls would be shouldering a major responsibility of marriage and family. The concern was that, would they be able to take care of their homes, bear healthy children, tolerate the stresses and tensions, perform all the household chores and lead a healthy life? The aim was to evaluate the physical fitness levels of young women between the age of 18 to 24 years.

### Method

Physical fitness tests were actually performed on a sample of 50 young women. The following tests were administered:

- Measurement of muscular strength by hand grip dynamometer
- Muscular endurance by sit-up test
- Cardio respiratory endurance by Harvard's step test
- Trunk flexibility by sit and reach test
- Body composition by Body Mass Index and waist-to-hip ratio.

### Results

The results reflected that the women were poor in muscular strength, muscular endurance (40.8 % had very poor muscular endurance), while 63.3 % of the women had very poor cardio respiratory endurance, they had relatively good trunk flexibility, their body mass index (BMI) was normal so was the waist to hip ratio .

### Conclusion

There is a tendency towards sedentary lifestyle among the young women. The concept of health, physical fitness was not clear among them. There is an urgent need to undertake intervention strategies at home, at the family level, at college and within the community.

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### A three-year longitudinal study of changes in physical activity levels, anthropometric measurements and dietary patterns among school-going Irish adolescents

Lead author	<b>Nora O'Brien</b> (University College Cork)	Ireland
Co-author	<b>Tom O'Connor</b> (University College Cork)	

Prevalence of overweight and obesity is increasing in Ireland. The aim of this study was to investigate longitudinal changes in anthropometric measurements, physical activity levels and selected nutrient and energy intakes of Irish adolescents aged 12–17 years. The study was performed with the assistance of home economics teachers in three secondary schools in the Cork area. A total of 162 adolescents (69 boys, 93 girls) were assessed annually over a three year period. Height, weight, body mass index (BMI), waist circumference (WC) and waist-to-hip ratio (WHR) were measured. Physical activity was assessed annually by a self-administrated physical activity questionnaire validated for adolescents. A three-day weighed food diary was used to record all food and drink consumed for a 72-hour period (Wednesday to Saturday) during each year of the study. The three-day diet records were analysed using WISP version 3.0 food composition software (Tinuviel Software, Llanfechell, Anglesey, UK). No significant difference was observed in BMI between boys and girls. BMI significantly increased over time. Boys had a significantly higher height, WC and WHR than girls in all three years. These Irish adolescents were still growing throughout the study as all anthropometric measures (except WHR) increased over the three years. Irish adolescent boys exercise more than their female counterparts. However, for both genders, reported physical activity levels decrease as they age during adolescence. Mean daily energy intakes (kJ) and mean daily macronutrient intakes (fat and carbohydrate) did not change significantly over the three-year study period in the adolescents. In addition, the average proportions of energy derived from the macronutrients did not change longitudinally. Boys consistently consumed more energy, carbohydrate, fat, starch and non-starch polysaccharides (NSP) than girls. Girls derived higher proportions of their daily food energy intakes from saturated fat and total sugars than boys in each year. While the typical diet of the Irish adolescents in the current study did not change substantially over the three years, their overall dietary pattern was poor. For example, the diet was characterised by high saturated fat intakes (as a percentage of food energy) and poor NSP intakes. If the dietary patterns observed in the present study are continued into adulthood, these Irish adolescents are at risk of CVD and other long-term chronic conditions. Additionally, promotion of regular physical activity among young people is required in order to reduce future chronic disease-related health problems.

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### The health and wellbeing of Australian indigenous young people: A snapshot of current health status and programmatic approaches

Lead author	<b>Peter Azzopardi</b> (Baker IDI Central Australia and Centre for Adolescent Health, Royal Children's Hospital, Melbourne)	Australia
Co-authors	<b>Power, R</b> (Burnet Institute, Melbourne) <b>Kennedy, E</b> (Burnet Institute, Melbourne) <b>Roseby, R</b> (Centre for Adolescent Health, Royal Children's Hospital, Melbourne) <b>Sawyer, S</b> (Centre for Adolescent Health, Royal Children's Hospital, Melbourne) <b>Patton, G</b> (Centre for Adolescent Health, Royal Children's Hospital, Melbourne) <b>Brown, A</b> (Baker IDI Central Australia, Alice Springs)	

#### Aim

Those engaged in indigenous health acknowledge that young people experience excess morbidity and mortality. However, the exact magnitude and success of programmatic approaches are unclear. The objective of this study was to summarise the current health status of indigenous young people and evaluated programmatic approaches.

#### Method

Data were identified through systematic literature review (1994-current) of studies reporting data on the health of Australian indigenous young people aged 10–24 years. Studies were broadly categorised into those describing health status and those evaluating a program or intervention.

### Findings

Young people have contributed little to the improvement in indigenous life expectancy during the last 40 years. Social determinants of health play a central role; indigenous young people were over-represented in correctional services and had low rates of secondary education. Major health issues include sexual and reproductive health (particularly sexually transmitted infection and teen pregnancy), substance abuse, injury and metabolic disease. There were many gaps in the literature; for example, while many studies reported high rates of teen pregnancy, no study reported whether these pregnancies were intended and if they occurred in the context of poor access to, and use of, contraception. Successful programmatic approaches (sexually transmitted infection, injury prevention and substance abuse) reported high rates of Indigenous community involvement.

### Conclusion

The jigsaw puzzle depicting the health of indigenous young people has many missing pieces and calls for an improved evidence base to inform programmatic approach. The emerging image, however, does support that indigenous young people experience poor health across many areas and that social determinants of health play a key role.

Room  
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## TEX 1 Preserving and reviving textiles traditions

Chair **Ela Dedhia**

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## Journey of Paithani motifs from tradition to innovation: Creating sustainable future for weavers of Yeola

Lead author	<b>Kavita Patil</b> (SMRK Mahila Mahavidyala)	India
Co-author	<b>Vimal Adhau</b> (Retired Reader of Amaravati University)	

The sari is the most predominant and noticeable attire among Indian women. Silk saris are most often worn for wedding ceremonies, festivals and formal parties. The most important aspect in the choice of a sari is its design and colour. Today's consumer is design conscious and always demands something unique and innovative. As such, the present study is an attempt to illustrate the rich heritage of Indian Paithani sari culture and transfer it to an innovative style for global consumers. The main aim of the study was to focus on traditional motifs used in Paithani sari: their significance, manufacturing technique and adaptation of innovative motifs to facilitate global competency, which will help to create sustainable futures for weavers. In Maharashtra state, Yeola is a small town in the Nasik district, where handloom weavers weave the Paithani sari in their traditional manner. Yeola is a location selected for the study having a population of more than 50,000. There are approximately 1200 weavers in Yeola. In the present study, a survey was conducted to know the present status of traditional and modern motifs, use of variety of traditional and innovative methods, duration required for weaving both styles, comparative cost of the sari, designing and manufacturing techniques used, raw material used, and varieties of the saris available. Sample size selected for the study was 120, using a random sample technique. Personal interviews and questionnaires were used. Paithani is a six-yard, gold embroidered jari sari, woven with a variety of methods. From the survey, it was found that the traditional motif used for the butti of the sari was only Kuyari motif. The border used to be woven only with narali (coconut) motif and the pallu with Bangadimor (peacock in a bangle), Tota-maina (parrot), in brocade Paithanis, which requires more than a year to complete and are very tedious to weave. So the cost of the sari was very high and not afforded by even higher middle class people. But nowadays innovative motifs have been introduced like innovative peacock styles, tissue motif and variation in the Kuyari (mango) motif which is in high demand in cosmopolitan cities, comparatively low in cost and requires less time for weaving, which will increase production and demand. It was observed that due to the adaptation of modern techniques of designing and incorporating innovative motifs in weaving which are suitable to consumer's taste, will help the weavers to survive and create a sustainable future. At present, 85 per cent of weavers are manufacturing saris with innovative designs to compete in the domestic and global markets.

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**Preserving the tradition of patterned mittens in Latvia**Lead author **Maija Kulakova** (Livani Secondary school No 1)

Latvia

In Latvia, patterned mittens were worn not only in cold weather to warm hands, they were used as presents at weddings, funerals and also had a symbolic meaning. Exploring ethnography as a source and acquiring samples of needlework that were used, I came to conclusion that patterned mittens are usually knitted. I made this investigation to find out what is known nowadays about the ethnography of using patterned mittens, where the information is obtained, as well as whether the traditions of using patterned mittens are preserved, if patterned mittens are worn with contemporary clothing and if mitten patterns are used as a source of inspiration to create other articles. The investigation was done by using literature, museum materials and interviewing more than 600 people of different ages, investigating contemporary products. More than 90% of the interviewees were aware of some of the traditional patterns of mittens historically worn. Information about the traditions of using patterned mittens is mainly obtained at school, as well as through the family passing knowledge from generation to generation. School has a huge impact on preserving folk cultural values. The investigation proves that nowadays patterned mittens are used because they are warm, nice and modern. Natural material is used to knit them. Mittens bring Latvian folk ornament elements to contemporary clothing, making it more beautiful, interesting, gorgeous and unique. Mitten patterns are rich because they are used with different elements. The interviewed people who deal with making different articles stated that they use a great variety of mitten patterns. The tradition of wearing and using mittens should be preserved as a part of Latvian culture for the coming generations.

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**Revival of textiles of selected tribes residing in Assam, the north eastern state of India**Lead author **Neera Barooah** (College of Home Science, Nirmala Niketan)

India

Co-author **Ela Dedhia** (College of Home Science, Nirmala Niketan)**Aim**

Assam, the north-eastern state of India, is acknowledged as the settling land for tribes that have carried forward the culture and tradition since the time they made Assam their home. Handloom weaving as a folk art having age old features forms an integral part of the culture and tradition of the diverse ethnic groups with diverse socio-cultural background. In the life of tribals, textiles and costumes is the reflection of their cultural identity. Tribal designs combine ornamentation of simple weave and artistic geometric shapes of flowers, animals, birds, and other symbols from nature. Despite rich textile heritage and tradition, the weaving traditions are fragile and vulnerable to changes in contemporary life, as the younger generations move away from villages. It is essential to preserve and revive their culture which is gradually decaying; whole-hearted efforts are being made by adopting various measures and techniques. The aim of this study was to understand the indigenous technique of spinning and reeling of silk yarn, and the weaving technique, and to contemporise the extinct or nearly extinct motifs and designs with the aid of CAD and develop products for fashion wear and home textiles.

**Method**

The Karbi, the Mishing, the Rabha, the Singpho and the Tai-phake tribes, having a strong textile tradition, were considered for the study. From each tribe, 15 families engaged in various textile manufacturing activities were administered interview schedules to understand their textile craft, spinning and reeling technique with silk, as well as their weaving techniques. Samples were developed using traditional and contemporised motifs and designs for home textiles and fashion wear. These were showcased to determine their acceptability.

**Results**

It was found that only a handful of tribes are still continuing with the craft of eri silk spinning and reeling of Muga silk. In contrast to earlier practices, only two tribes are still continuing to weave with back strap looms, while others have adopted the throw shuttle or fly shuttle looms. Developed samples were well appreciated by selected users.

**Conclusion**

The study identified a great threat towards sustainability of the textile tradition of the tribal community; however, challenges can be overcome by product diversification and high value addition. This approach is likely to encourage the younger generation to continue their textile tradition.

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### Modification and adaptation of designs inspired from Madhubani paintings and their application through various textile ornamentation techniques on household textile products

Lead author	<b>Amita Dutta</b> (JD Birla Institute)	India
Co-author	<b>Ruchita Bohra</b> (JD Birla Institute)	

A study was conducted to explore the rich motifs of Madhubani paintings as a source of design for contemporary use on household products with the aim of making the products more appealing and in turn popularising Madhubani paintings. Madhubani paintings are the source of inspiration for a lot of creations. But generally motifs are taken as they are from their source, without any changes and placed on the object. The adaptation is done in the placing, not on the motif. The motif is generally not adapted according to the technique; the technique is chosen according to the quality of the motif. However, both design and technique of the selected motifs can be modified according to the contemporary requirement of the product on which it is applied. The designer can have contemporary adaptations of this traditional style and implement it on different objects. Keeping this in mind, this topic was chosen and efforts were made to study Madhubani paintings, select motifs from different styles and modify them in different design styles suitable for different surface enrichment techniques and various household products. Bharni, Kanchi and Godhna styles of Madhubani paintings were studied and one painting from each was modified in three different styles of designs – stylised, geometric and naturalistic. Colour and shape of the motifs were also adapted to contemporary taste. These were applied on three household articles: cushion cover; tablemat and napkin; and bag. A preliminary survey was conducted on three categories of respondents: retailers, consumers and derived consumers (twenty-five from each category). A two-way ANOVA technique was taken to find out if the differences were significant. Since significant difference was found among the acceptance of the different styles of modified Madhubani designs, a pair-wise comparison was done, between three styles of designs. Stylised design was the preferred choice and was applied on all the three articles by using six surface enrichment techniques – three printing techniques (screen, stencil and digital printing) and three embroidery techniques (machine, hand and embroidery with beads and sequins work). A total of twenty-four products were made. A final survey was done to understand the comprehensive acceptance of the products. Hypothesis Testing of Proportion method was used to analyse which technique was the most preferred. The modifications in designs, adaptations of colour and shape and their applications on household products were very well appreciated. All the products were found very suitable for marketing.

Room  
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### EDU 03 Transforming the home economics message in higher education

Chair **Setsuko Nakayama**

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### Teaching lifespan development through Global Service Learning

Lead author	<b>Sharleen Kato</b> (Seattle Pacific University)	United States
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Helping others is a fundamental part of being human. It makes for healthy social living (Dovidio, Piliavin, Schroeder & Penner 2006.) As a result, many undergraduate programs now include service learning as a part of their curriculum (Lu 2010) with the intended result being more student empathy toward others, improved professional skills (Simons and Cleary 2006), and enhanced student learning (Whitaker and Berner 2004.) This project sought to enhance students' understanding of lifespan development stages through service learning conducted in the city of Manila, in the Philippines. Twelve American university students were selected to participate in a service learning project that included working in a children's home, village school, feeding programs, and teen home associated with Kid's International Ministries in Manila over a ten-day period. To prepare, students were given a basic overview of infant, child, and teen development and a general overview of Filipino culture and expectations. They then travelled together to the site to serve the needs of disadvantaged children and teens living in the homes set-up for orphaned children. Learning was assessed using both quantitative and qualitative measures. Upon return home, students were asked to complete four online quizzes that covered developmental stages from infancy through adolescence. Their scores were

compared to scores achieved by students who completed a traditional lifespan development course that did not involve global service learning. In addition, students completed journals using prompts that asked them to reflect on their own professional skills as well as their understanding of child development in an unfamiliar context. For comparison, students who did not participate in the global service learning component were shown a video that highlighted the development of four infants during their first year of life in diverse cultural settings. Results indicated that indeed students' empathy, learning, and professional skills were enhanced by service learning in a global context.

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### Learning management in home economics based on the sufficiency economy philosophy for sustainable futures

Lead author

**Kanjana Keatmaneerat** (Chiang Mai University)

Thailand

#### Aim

Sufficiency Economy Philosophy (SEP) is a philosophy that focuses the middle path as an overriding principle for appropriate conduct by the population at all levels. SEP means moderation, reasonableness, and the need for self-immunity to gain sufficient protection from impacts arising from internal and external changes. The aim of this research was to study the outcomes of integrated learning provision in home economics based on the Sufficiency Economy Philosophy in consumer education course.

#### Method

The study group consisted of 54 student teachers of the Faculty of Education, Chiang Mai University, who enrolled in the consumer education course, semester 2/2010 and 1/2011. The four-step processes of Kemmis and McTaggart (1988) are as follows: 1. planning, 2. action 3. reflection, and 4. re-planning. The research instruments used include a lesson plan, diary, evaluation work group and open-ended questionnaire. Quantitative data were analysed by frequency and percentage. Qualitative data was analysed to link the content description information to conclude the findings.

#### Findings

The study group was mainly women aged 19–20 years old, typically receiving money from parents of 3000–5000 Thai baht per month – an adequate allowance. Students generally liked to attend the theatre and most liked to make merit at the temple. The results of integrated learning provision based on the Sufficiency Economy Philosophy in the consumer education course included planning, research studies in relevant content, analysis of learners, integration of specific content and the period of learning, and preparing lesson plans. Putting the learning activities into action involved linking the content and infusing the main idea of sufficiency into daily life. The study group focused on spending judiciously, using water and power efficiently, recording revenue and expenditure, planning purchases, and the consideration of ethics. The study group learned through three aspects: knowledge, skills and mental capacities; they could be trained to consume according to sufficiency. Re-planning should increase the awareness of a variety of consumption patterns and should include interviews of key respondents. The display of results could be more illustrative.

#### Conclusion

SEP was used in the consumer education course for home economics teacher students. The different results related to psychological perception and lifestyle. This process allows student teachers to think logically based on their potential. The important thing in terms of moral life was that they need to gain sufficient protection from impacts arising from internal and external changes and to be mindful of sustainable development.

365

### Factors influencing South African students while they were obtaining their degree in Family Ecology and Consumer Science at South African universities

Lead author

**Judith Cornelissen** (University of the Western Cape)

South Africa

#### Aim

The professional education experience is considered as the peak of professional socialisation. It is the time during which students learn the specialised roles, skills, norms and professional values fundamental to the practice of the profession. The purpose of this study was to identify the factors that influenced South African students while they were studying towards a Family Ecology and Consumer Science degree in the context of professional socialisation and to determine whether these factors differed when selected variables such as year of registration and type of university were applied.

### Method

A quantitative methodology in the form of an analytical survey was undertaken with students at South African universities where Family Ecology and Consumer Science programs are offered by means of the Professional Socialisation Influences (PSI) questionnaire. Descriptive statistics and the factor analysis were used to examine which factors influenced students while studying towards a Family Ecology and Consumer Science degree. The mean ranks were then used to compute a Chi-Square statistic to see if there are significant differences between factor scores across categories of respondents per factor and per the variables: 'university registered' and 'year of registration'.

### Findings

The findings indicated by a factor analysis on 'while obtaining a degree in Family Ecology and Consumer Science I am influenced by' revealed five factors: student interaction, departmental influences, field interest, career potential and mentorship. This study identified the factor 'student interaction' as the most important influence while they were taking a degree in Family Ecology and Consumer Science. Some aspects describing this factor were 'students sharing information from reading and experiences', 'cooperation between students', and 'close relationships between students outside the classes'. Factors that also received the highest responses regarding influence while studying for a degree in Family Ecology and Consumer Science were aspects such as 'career opportunities available', 'application of what I learned to my personal life' and 'employment opportunities available'.

### Conclusion

It can be concluded that there is great peer group solidarity among students doing Family Ecology and Consumer Science. The implications of these interactions are that students could act as role models and sources of information to peers. Both types of interaction are part of the professional socialisation process that influences the student's professional identification of what it means to be a Family Ecology and Consumer Scientist.

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## Comparisons of student achievements for a Family and Consumer Sciences course in higher education using two delivery methods

Lead author

Paula Tripp (Sam Houston State University)

United States

### Aim

The purpose of the study was to compare student characteristics and achievements of those enrolled in an upper-level Family and Consumer Sciences (FCS) course offered by Sam Houston State University both on-campus and online. This course was offered through both formats in the spring and fall (autumn) 2010 semesters and the fall 2011 semester. This study was unique in that it compared one FCS course delivered by two methods during the same semesters; there are very limited publications with this type of comparison in the FCS field.

### Methods

The junior and senior students in each section of the course had the same textbook, same instructor, and the same assignments and assessments so those variables were not factors when comparing the student achievements. A comprehensive pre-test and post-test of course information was completed on a voluntary basis. The students also completed a brief, voluntary, anonymous, and confidential survey of demographic information and shared their perspectives of the course format. There were no incentives for completing the survey. The instructor and a teaching assistant graphed the assignment and assessment scores as well as the final grade distribution for each section.

### Results

Student profiles were generated for each section of each class each semester. The combined general profile of the students from 2010 was a 24-year-old full-time female student who commuted to campus and worked part-time; data from fall 2011 will be calculated at the end of the semester. The 2010 on-campus students preferred the face-to-face interactions and immediate feedback from students and instructors, while online students preferred the convenience and flexibility of studying online. There were similar pre-test and post-test scores and final grades between the sections. For instance, during the spring 2010 semester 93% of the on-campus and 94% of the online students achieved an A, B, or C in the course; for the fall 2010 semester 100% of the on-campus and 94% of the online students earned an A, B, or C.

### Conclusion

While the conclusions from this limited study cannot be generalised, the results contribute important insights for comparing online and on-campus FCS course delivery. For this sample, there were only slight differences in their course achievements, indicating that the delivery method of course materials was not an important factor in the results. Still, students did indicate preferences for one delivery over another. With online course delivery growing at a rapid pace, FCS faculty and administrators can consider this information when planning sustainable course schedules.

Room  
111**HEA 2 Health and wellbeing across the lifespan**Chair **Joanne Mackie**

277

**Impact of bone health education**Lead author **Evelyn Holsman** (Australian Bone Density Testing Centre)

Australia

Emerging trends show an increasing number bone fractures due to osteoporosis reported in Australia, especially in older citizens, with associated high rates of hospitalisation for affected individuals (Osteoporosis Australia 2007). Knowledge about the factors influencing the onset and risks of osteoporosis was found to be low even in a group of people who were planning to undergo a bone density test (Spencer 2006), a likely indicator of awareness. This suggests that changing exercise and dietary behaviours to reduce risks of osteoporosis requires education interventions. This presentation describes a research project investigating the influence of an education strategy on client awareness and behaviour related to maintenance of bone health. The Australian Bone Density Testing Centre (ABDTC) offers a mobile service all year round throughout metropolitan and regional Australia in pharmacies, health and fitness centres and corporate facilities. This service includes quantitative ultrasound bone density testing, a one-on-one consultation and an easy-to-read booklet to guide changes in behaviours. The effectiveness of this intervention in initiating behaviour change was evaluated. Participants were recruited by ABDTC testers who invited attendees to complete a questionnaire before having their bone density testing consultation. Data was collected using a questionnaire before and after participation in the intervention. Data was then analysed to identify any changes in behaviour, and the variables that influenced the impact of this intervention. Although individual outcomes varied according to age, gender and a number of lifestyle variables, this intervention demonstrates an effective way to reach, empower and motivate Australians to moderate their risks of osteoporosis.

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**Nutrition education: remedy for sustainable breastfeeding and complementary feeding practices in Ogun State, Nigeria**Lead author **Ifeoma Akeredolu** (Yaba College of Technology)

Nigeria

Co-authors **Olufemi Osisanya** (Yaba College of Technology)  
**Patricia Mbah** (Federal College of Education)  
**Josephine Okafor** (Federal Polytechnic, Ilaro)

Breastfeeding and complementary feeding is recognised as the best source of nutrition for infants and young children. Breastfeeding can prevent the risk of neonatal and young child mortality, malnutrition, stunting and underweight. The aim of this study was to examine the impact of nutrition education on infant feeding practices in Ado-Odo Ota and Ifo local government area of Ogun state, Nigeria. The design used for the study was survey method. Fifty nursing mothers who had children aged between one month and 12 months were randomly selected from a population of 215. Four research questions were formulated to guide the study. A structured research questionnaire was adopted for data collection. The data were analysed using frequency, simple percentage and chi-square. The result of the study showed that there was a level of awareness of nutrition education among nursing mothers. It was therefore concluded that the feeding practices adopted by mothers are not adequate for child care as indicated by the nutritional status of the children. Among recommendations made were that messages concerning infant and young child feeding should be documented and made available to all stakeholders.



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### Food safety consumption values of Chiang Mai University students

Lead author

**Narong Sikhiram** (Chiang Mai University)

Thailand

The purpose of this study was to investigate the correlation between food consumption values and food safety knowledge level of the Chiang Mai University students in Chiang Mai, Thailand. The instrument used in data collecting was a questionnaire on the food consumption values of the 440 university students. Data were analysed by one-way analysis of variance. The findings were as follows:

1. The mean score on food consumption values of university students was considered to be the 'high' level.
2. The comparison of food consumption values indicated that:
  - a. The female students had higher food consumption values than the males ( $P > 0.05$ )
  - b. The students who had to join the Food Security Program, organised by the university, had higher food consumption values and food safety knowledge levels than the other students ( $P > 0.05$ )
  - c. There was no significant difference in the food consumption values of students when education, guardian occupation and family size were considered.

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### Are you ready for retirement? Assessing your capacity for a healthy lifestyle

Lead author

**Kitty Decker** (IFHE and AAFCS/OK)

United States

Co-authors

**Ruth Ann Ball** (IFHE and AAFCS/OK)  
**Joan Mcfadden** (AAFCS/IFHE)

Retirement needs an individualised approach to reinventing, rewiring, rejuvenating, recuperating, renewing to a reflective and rewarding life stage. Participants will be guided through the following objectives:

1. Review the adult stages of development and generational theory
2. Analyse the stages of retirement and strategies for a successful transition utilising physical, social, emotional and cognitive abilities and skills.
3. Engage participants in discussion about what they will use to enhance and support them during the next phase of their life's journey.

Current research on retirement will be shared, with some examples from professional roles including how pre-retirement women prepare for retirement. Recommendations from women's retirement studies completed in Australia, Canada, China, Finland, Great Britain, Hong Kong, New Zealand, Sweden, and United States will be reported. In general, research has shown that because of other priorities, responsibilities, or work disruptions, women may not have adequate retirement. Financial investments may be mediating factors. But do disruptive life events affect health and quality of life in retirement? Do men and women plan for retirement in the same way? Women's retirement adjustments include reestablishing order in their life. Being in charge of their life has been described as the most important factor for retired women. Those who said they were 'in charge' were healthy, lived life in own way and had an active role in society; they were content with what they had, and had coped with the need to adapt to limiting circumstances. They described 'being in charge', as making their own choices in life based on their own values. The frequency of alcohol and drug use has been studied in retired women as has the prevalence of depression; increases in both have been linked to retirement. Recommendations from the research studies for improving retirement among women will be presented, discussed and distributed.

## Symposium

Room 106	<b>SYMHEA 2 Victorian Department of Health sponsored symposium: Health interventions</b>	
Chair	<b>Tony Worsley</b>	

### Creating a vibrant healthy eating culture in Victoria

Presenter	<b>Veronica Graham</b> (Department of Health, Victoria)	Australia
Co-authors	<b>Shelley Bowen</b> (Department of Health, Victoria) <b>Holly Piontek-Walker</b> (Department of Health, Victoria) <b>Maureen Murphy</b> (Department of Health, Victoria)	

Healthy eating is the foundation of a healthy population, a productive workforce and a thriving economy. The Department of Health's commitment to improving healthy eating is outlined in the Victorian Public Health and Wellbeing Plan 2011–2015 and is supported by the Prevention Community Model funded under the National Partnership Agreement on Preventive Health. The Victorian Healthy Eating Enterprise (VHEE) is a major new initiative in Victoria to improve access to nutritious food across all settings, by collaborative effort between local government, business, the health sector, education settings and communities. Children and young people are also the focus of a new primary prevention and health promotion policy that is being jointly developed by the Victorian Department of Health and the Department of Education and Early Childhood Development. The objectives and actions of this policy and the VHEE will complement each other in supporting children, young people and families to live healthier lives. A new Healthy Food Charter is the foundation of the VHEE and will ensure healthy eating is promoted consistently. Statewide healthy eating initiatives include the Victorian Healthy Eating Advisory Service and the Victorian Prevention and Health Promotion achievement program while local initiatives include the Healthy eating and food literacy in secondary schools initiative managed by Home Economics Victoria. The objective of this initiative is to increase the knowledge and skills of young people in the production, growing, buying and preparation of fresh, nutritious and affordable healthy food.

### Home economics and food literacy – An international investigation

<b>Donna Pendergast</b> (Griffith University)	Australia
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Child and adult obesity is a growing concern in affluent nations around the world, as typified in Australia where the incidence is more than 25 per cent for children and 55 per cent for adults. The connection between obesity, food choices, nutrition knowledge, and food preparation skills is well established. However, education about the concept and processes of 'food literacy' is relatively new. Furthermore, public discussion about the role of schools and formal curricula in preparing young people to be food literate has received scant attention until recently when medical experts dealing with the consequences of the obesity epidemic made the following plea: 'providing a mandatory food preparation curriculum to students throughout the country may be among the best investments society could make – bring home economics back' (Lichtenstein & Ludwig 2010, p. 1858). This paper reports on an international study about the role of home economics in developing food literacy. Data were collected using an online survey with respondents from around the world replying to a series of questions about this topic. Among key findings are the differences in understandings of 'food literacy'. Recommendations for future action are presented as a conclusion to this paper.

### School meals: Between policy and pedagogy

<b>Jette Benn</b> (Aarhus University)	Denmark
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#### Aim

The health of children and adolescents is on the political agenda at present. That is the reason for present political focus on school meals and school meal offers. This study aims to investigate primary and secondary school meals in the past and the present. It examines how policy and pedagogy have changed through history in the Danish school system, and contributes to a more nuanced understanding of the possibilities and problems concerning school meals.

#### Method

The study is carried out as a literature review of reports, documents and acts supplemented by an evaluation study of a present school meal offers from the last 10 years.

### Results

The historical study shows that school meals have been influenced by nutritional knowledge, discourses concerning responsibilities of parents and the school system, pedagogical and educational issues, economic conditions and institutional structures at the time. When introduced in Denmark in the 1880s, meals were simply to feed the poor children. Meals have changed from hot meals to cold bread meals, from free meals to sales offers, and back to free meals and paid as well. Political discourse on school meals reflect the values and priorities related to political philosophy, views of families, children and school. Decisions have been taken locally or at state level. Policies have been changing from a social poverty policy to a family and equality policy, whereas health policy has been part of every offer. Concerning education, meals have been used as part of food and health education with pedagogical aims, visions, and involvement of pupils changing over time.

### Conclusion

The historical research showed different ways of dealing with school meals. School meals could and can be seen as a common good and a health tool offered by the community or as a family matter. School meals can be a break in the day for social relaxation or used as a health educational issue or both. The meal is part of everyday life in school but it is often not seen as such in Denmark. Results from latest school meal projects put forward the following questions:

- Are school meals a government responsibility or the responsibility of each individual family?
- Are school meals part of the school day or are they a lunch break?
- Are school meals part of learning and education or purely to provide nutrition – or both?

## The family meals and child-rearing of Japanese families with small children

**Mami Omote** (Kyoto Women's University)

Japan

### Aim

In recent years, Japan has been confronted with various social problems associated with children, such as bullying and truancy, that are thought to arise from lack of ability to communicate. Communication within the family undoubtedly cultivates children's ability to communicate but these days it is continuously decreasing. The family meals that promote communication within the family are also on the decrease primarily due to parents being busy with their work and children's daily schedule of attending private preparatory school. The present study used a questionnaire to look into the actual condition of the family meals and child-rearing of Japanese family having small children.

### Method

A total of 6252 families, including 2704 families with nursery children, enrolled in 40 nurseries, and 3548 families with preschool children, enrolled in 24 preschools, were asked to answer the questionnaires about family meals and child rearing. The survey was conducted in Kyoto in February 2009. The recovery of the questionnaire was 59 per cent (1617) for families with nursery children and 82 per cent (2909) for families with preschool children. An SPSS 17.0 was used for statistical analysis.

### Results and conclusions

The results were as follows:

1. Of the 4526 families that responded to the questionnaire, 62 percent frequently had meals with all family members together, 29 percent sometimes, and 9 percent scarcely.
2. Of the families with many children, those with the mothers having a full-time job or with the grand-parents living with the family tended to more frequently have meals together with all family members.
3. In the families having frequent family meals, the father participated more positively in child-rearing and frequently talked with the mother about the relevant problems.
4. In the families having frequent family meals, parents tended to make frequent contact with their children, thereby providing opportunity for the children to cultivate their own aesthetic sentiments and to learn the rules of the home.
5. In the families having frequent family meals parents are inclined to be positive about, confident of and less anxious about child-rearing.

The overall results of the present study clearly revealed the importance of family meals in child-rearing, which is to be emphasised in home economics education.

## An investigation of the contribution of junior certificate home economics to the nutritional knowledge and food skills of adolescents in the Republic of Ireland (RoI).

**Amanda McCloat** (St Angela's College)

Ireland

### Aim

The second level Junior Cycle Home Economics curriculum in the Republic of Ireland (RoI) is designed to provide students with knowledge, skills and understanding which are necessary for daily living as individuals and as members of a family. The relevancy of life is inherent in the study of home economics which makes an important contribution to the acquisition of life skills and the empowerment of adolescents with transferable food skills. Therefore, the aim of this research is to investigate the contribution of Junior Certificate Home Economics to the nutritional knowledge and food skills of adolescents in the RoI.

### Method

The data for this research was obtained by using a questionnaire within which a mixed method was evident eliciting both qualitative and quantitative data. Ethical approval was granted by the School of Community and Health Science Research Ethics Committee, City University, London. The questionnaire was distributed to 100 Junior Cycle Home Economics students and 100 non-home economics students with a response rate of 94% and 75% respectively (total n=169). Additionally, a questionnaire was also administered to ten home economics teachers. Following distribution and collection of the questionnaires quantitative data was analysed using Statistical Package for the Social Sciences (SPSS) Version 17. Qualitative data was analysed and thematically coded.

### Results

The results revealed that students of home economics demonstrated a confidence in nutritional knowledge and culinary skills which is not evident in their counterparts who do not study the subject. Indeed, non-home economics students reported a lack of confidence in their culinary skills and in their nutritional knowledge. All (n = 94) students of home economics attributed their knowledge of healthy eating and nutrition to having studied the subject for three years at Junior Certificate level. Additionally, teachers also identified the important contribution of home economics to the students' knowledge of nutrition and healthy eating as a key benefit and relevance of the subject to students in contemporary society. The findings identified home economics as a key vehicle in the teaching of basic culinary skills to students.

### Conclusion

It is apparent from the findings of this research that in order to enable adolescents to make the best dietary choices for their health it is necessary for them to receive comprehensive sequential nutrition education and culinary skills. There is, therefore, a need to have mandatory home economics at Junior Certificate level in RoI in an effort to facilitate the empowerment of students with the knowledge, understanding and skills which allows them to make appropriate food choices.

## Healthy eating with Fonzu: A cross-curricular health and nutrition education pilot project

**Suzanne Piscopo** (University of Malta)

Malta

### Aim

'Healthy Eating with Fonzu' was an educational pilot project within the larger European Food Framework project. The goal was to develop, pilot and evaluate a set of teaching and learning resources targeting primary school children in Malta.

### Method

Five schools participated in the pilot project. A mascot was selected by the children; the mascot visited the schools during assembly and was also reproduced in the resource packs that targeted year 2 (children six to seven years old) and year 5 (children nine to ten years old). The resource pack consisted of a student workbook, a teacher's handbook, a CD ROM (with original presentations and videos about food groups, healthy snacks, a food song and dance, plus script for a play) and a board game. The focus was on promoting a plant-based diet, traditional foods and recipes and physical activity using a cross-curricular approach. Two parents' newsletters highlighting key project messages were also distributed. All materials were piloted over a period of six weeks and evaluated using a pre- and post-test questionnaire

(331 pre-test, 354 post-test) and class-based or small-group interviews with children (n = 13), a feedback sheet (n = 18) and individual or small group interviews with teachers (n = 8) and school management team members (n = 3), and phone interviews with parents (n = 5). The purpose of the evaluation was to assess short-term impact on the children's health knowledge and behaviour and to obtain feedback on pedagogical and technical aspects of the resource pack.

### Results

Based on the pre- and post-test survey results and interviews, there was an overall increase in knowledge among the year 2 students (+2.7% to +25.7%) and a mixed impact among the year 5 students (-7.4% to +16.9%). With year 5 students there was a decrease in knowledge in relation to sugar content of plain and flavoured milk and the health value of chicken compared to sausages and iced tea compared to water. However, these results have to be interpreted cautiously as there was no student control group, not all teachers managed to use all the materials with their students and the level of nutrition knowledge of the teachers varied. Meanwhile, the feedback on the design and pedagogical value of the resources was very positive, though improvements were suggested for increasing the variety of written exercises, potential for group work and visual appeal. The teacher handbooks were praised for their link with subject syllabuses and step-by-step guidance.

### Conclusion

This pilot study, including multi-stakeholder evaluation, revealed the potential educational value of the project's cross-curricular materials and indicated areas for improvement for a more positive impact on children's health knowledge, attitudes and behaviours.

## Workshop

Room 103	<b>WS IHM Seniors in rural and urban areas from a home economics perspective</b>	
Chair	<b>Margot Steinel</b>	IFHE Program Committee
Presenters	<b>Elisabeth Leicht-Eckardt</b> (University of Applied Sciences Osnabrueck, Germany) <b>Nishi Surana</b> (Dept of Consumer Sciences, University of Swaziland) <b>Yukiko Kudo</b> (Ministry of Education, Culture, Sports, Science and Technology, Japan) <b>Seema Puri</b> (Institute of Home Economics, University of Delhi, India) <b>Mabel Cordini de Rosa</b> (Federal University of the Jequitinhonha and Mucuri Valleys, Brazil) <b>Janice Maison</b> (University of Guyana)	

The social and infrastructural basis for the daily life of the elderly is an existing or developing problem throughout the world, keeping in mind the change of demographic and family structures and modern way of life (work outside the home, role of media, migration from rural areas). To get a valid basis for this project, the project team has undertaken first research in each participating country, indicating that these problems are comparable worldwide and home economists can contribute to ensuring necessary conditions for the daily life of the elderly, especially in rural areas. Elderly people can lose their integration in society. They should not only be consumers of services (trained to accept maintenance and new structures) but also be encouraged and trained to take care for themselves by improving individual skills and networks and to transfer their experience to others. The case study in six countries of all regions of the world worked on from 2011 until 2013 compares the situation of elderly people in rural and urban areas, significantly aiming to develop a standardised professional profile for home economics to support the elderly in their surroundings (by private households, private or public home-related services, or homes), leaving space for regional cultural specialisation. The concept of the terms 'region', 'rural area' and 'elderly' have to be defined in the participating countries (standing for the continents of the world) and compared first. Market needs shall then meet markets for information, communication, consumption and production. This will be traced and evaluated with an enquiry, developed by the project team and pre-tested in selected areas. The data of each country (collected in scientific literature research, interviews, enquiries and in case studies) will focus on meal service, catering and care. The data will be selected and interpreted for each country and finally compared and interpreted in comparison for the world regions. Thus there exists the basis to develop a worldwide basic curriculum for home economics training, focusing on the support of the elderly. This one-year training, which can be compared and accepted all over the world, qualifies home economic experts for all countries and regions, supporting the United Nations MDGs. This case study, scientifically evaluated and compared for the participating countries standing for the regions of the world, will underline the necessity of a basic home economics training course.

## Concurrent sessions

Room 101	<b>FDN 1 Food technology research and development</b>	
Chair	<b>Ingrid Ute-Leonhaeuser</b>	

38	<b>Production of mango leather and its potential use in juice production</b>	
Lead author	<b>Vivian Ojukwu</b> (The International School, University of Ibadan)	Nigeria
Co-author	<b>MA Akpapunam</b> (University of Agriculture)	

### Aim

This study was undertaken to produce mango leather, produce juice using the mango leather and to determine the physiochemical, sensory and microbiological properties of the mango juice.

### Method

The leathers were processed by washing, peeling and slicing the semi-ripened mangoes. Parts of the slices were treated with sodium metabisulphite while some were untreated. Both treated and untreated samples were dried in a solar drier. Mango juice was prepared from the dehydrated leather following dehydration, blending, filtration, homogenisation and pasteurisation. Chemical analysis (titratable acidity, pH determination and total sugar determination), sensory analysis and microbial analysis were carried out on the juice samples produced from both treated and untreated mango leather.

### Results

Sensory panelists rated juice from the untreated mango leather without peels highest with regard to colour, mouth feel and general acceptability while juice from treated leather with peels was rated lowest. Total titratable acidity ranged from 0.22%–0.44%. The pH of the juice samples were 3.77, 4.09, 3.09 and 4.09 for treated with peels, treated without peels, untreated with peels and untreated without peels respectively, Total soluble sugar contents were 1.4 mg/100g, 10.9mg/100mg, 10mg/100g and 11.6mg /100mg for treated with peels, treated without peels, untreated with peels and untreated without peels respectively. Brix values obtained were 3.9, 5.5, 7.2 and 6.0 at an ambient temperature of 29°C for treated with peels, treated without peels untreated with peels and untreated without peels respectively. Microbial examination that was carried out on unpasteurized and pasteurized juice produced from mango leather and fresh mango showed that there was microbial contamination of the unpasteurised juice, however fungi growth was observed only in the juice from mango leather. Pasteurisation reduced the microbial levels in the juice samples to insignificant levels.

### Conclusion

The juice from untreated without peels, treated without peels and untreated with peels to some extent met consumers' acceptance. Processing of mango in this form will help in utilising surpluses, cutting down waste during mango season and providing a stock from which to develop the juice when the fruit is out of season.

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## Consumers' responses to food images and their behavioural intent: An application of Q-sort methodology

Lead author	<b>Hennie Fisher</b> (University of Pretoria)	South Africa
Co-authors	<b>Adre Schreuder</b> (Consulta) <b>Alet Erasmus</b> (University of Pretoria) <b>Gerrie Du Rand</b> (University of Pretoria)	

### Aim

This report reflects part of a larger study that investigated consumers' responses to, and their behavioural intent towards selected food images that were matched with specific aesthetic indicators. The Q-sort method, which is a reliable psychometric technique, was used. Results from existing studies using photographs in non-food related contexts such as architecture and the travel industry confirmed the apt use of Q-Methodology within image research although little evidence could be found of its application to investigate food images and aesthetics. This paper therefore aimed to contribute in this regard.

### Method

The Q-sort method that originated in personality assessment combines qualitative and quantitative analysis to provide systematic and rigorous means of objectively describing human subjectivity. For this study, the 5-step procedure of Q-Methodology was followed to collect relevant ideas, beliefs and opinions concerned with styled food images. During step 1 the discourse was developed through interviews with South African food stylists. Step 2 involved the development of the data collection stimuli (i.e. food images and aesthetic indicators). During step 3 the P-set or the Q-participants (i.e. a sample of readership from two prominent South African food magazines) were recruited. Steps 4 and 5 involved the actual Q-sort and data analysis.

### Results

The 270 Q-participants were purposely sampled in terms of demographic characteristics (age, gender, race and total household income) from the readership statistics of the selected food magazines. Willing participants then had to sort 36 cards along a Most Agree to Most Disagree continuum. The data collection tool consisted of six food images that were printed with one of six aesthetic indicators at the bottom (i.e. a total of 36 unique cards). Q-participants there after provided a single word reason (from a predetermined list) for selecting the cards that were on their Most Agree pile and then rated them using a 10-point Likert-scale to indicate how much they believed the image and aesthetic indicator would alter their behavioural intent. The Q-sort results were captured and coded and subjected to exploratory factor analysis. Seven factors were distinguished, which explained more than 60% of the variance, even though the first factor dominated with a 17.7 per cent variance across the Q-participants' sorts.

### Conclusion

Q-sort methodology is based on intuitively understandable and apparently enjoyable procedures that are relatively simple to execute. Findings confirm the potential of this food image sorting task for future research especially for exploratory image research whilst providing a cost- and time-effective means for detailed research.

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## The use of various sensory techniques to describe South African cheddar cheese

Lead author	<b>Carina Bothma</b> (University of the Free State)	South Africa
Co-authors	<b>Annelize De Wet</b> (University of the Free State) <b>Arnold Hugo</b> (University of the Free State) <b>Gernot Osthoff</b> (University of the Free State)	

### Aim

The present study investigated the acceptability of 15 cheddar cheeses by a consumer panel, in terms of overall liking, followed by a description of the sensory attributes by using free choice profiling (FCP). Preference mapping (PM) was used to determine how the descriptive attributes of the cheeses related to consumer acceptability.

### Method

A total number of 220 regular cheddar cheese consumers, in two major cities in South Africa, evaluated 15 cheese samples. Panellists were asked to respond to the question 'how much do you like or dislike the sample?' on a nine-point hedonic scale. A group of ten panellists generated as many terms as possible to describe appearance, texture, aroma, mouthfeel, taste, after-taste and after-feel in a free choice profiling test. An unstructured line scale, ranging from zero to ten, was constructed, using the assessors' own vocabularies. Three evaluation sessions were scheduled, with a 20 minute rest period between each session. During one session five samples were evaluated in triplicate. Fisher's Least Significant Difference test determined a significant difference in acceptance ( $p < 0.05$ ) for the consumer panel. The data from the FCP test was analysed by generalised Procrustes analysis. Agglomerate hierarchical clustering was performed to cluster consumers together based on their liking of cheddar cheese. Internal preference mapping was conducted on the acceptability scores of the consumer panel, to determine the relationship between sensory attributes and consumer preference.

### Results

For the consumer panel, the most liked cheese sample had the highest mean value of 7.16, and was aged for 60 days. Between 21 and 42 attributes were generated in the FCP test: aroma (16); texture/appearance (14); mouthfeel (15); taste (20); after-taste (18); and after-feel (9). Preference mapping indicated two consumer clusters, showing higher acceptance for cheeses with more 'young/undeveloped' attributes. The 'ideal' cheddar cheese for this consumer panel had: a 'sweetmilk', 'gouda-like', 'buttery' aroma; a 'shiny' appearance and 'rubbery' texture; a 'rubbery', 'fatty', 'tacky', 'soft- and/or hard' mouth-feel; a 'gouda', 'buttery', 'sweet' taste; a 'gouda', 'buttery', 'sweet' after-taste; and a 'fatty coating' and 'oily/fatty' mouth-feel.

### Conclusion

The FCP technique proved to be valuable in profiling the 15 cheddar cheese samples regarding aroma, texture/appearance, mouthfeel, taste, after-taste and after-feel. It could also be used to describe the cheddar cheese being favoured by the South African consumer, as having more gouda-like sensory attributes than typical known cheddar-like attributes.

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## Germinated Hom Mali brown rice: An innovation for promoting nutrition for Thai people

Lead author	<b>Tasanee Limsuwan</b> (Kasetsart University)	Thailand
Co-authors	<b>Lily Ingsrisawang</b> (Kasetsart University) <b>Ngamsirakhwan Permsri</b> (Kasetsart University)	

### Aim

Rice is the main staple food in Asia including the Thai population. Germinated brown rice is a health food product made by allowing rice seeds to start germinating before cooking. During germination, high molecular weight polymers are hydrolysed and bio-functional substances produced, including several nutrients and GABA, an inhibitory neurotransmitter that promotes relaxation and sound sleep. The purpose of this study was to determine the suitable method for germinating and cooking germinated brown rice for daily consumption and to analyse its GABA content and nutritional values.



### Method

The hommali variety of brown rice was soaked in water for four hours and then placed on moist cloth at room temperature to begin germinating overnight. The rice was allowed to germinate approximately 1–2 mm at the germ part of the rice grains. The rice was then washed with water and divided into two parts. The first half was left fresh and the second half was dried in an oven at 60°C for longer shelf life. Both were then cooked in an automatic rice cooker using water at the ratios of 1:1.7, 1:2 and 1:2.2 w/w. The cooked rice was tasted for sensory acceptance by a group of 30 adults aged over 20. The data was analysed by using the Friedman test and the Wilcoxon matched-pairs test. A Paired-Samples T-Test was also conducted to compare the difference in the nutritional values of proximate analysis and determination of vitamins B1, B2, niacin, iron and GABA between the cooked germinated and cooked non-germinated brown rice.

### Results

The results showed that both fresh and dried germinated rice received the highest flavour scores when cooked with water at the ratio of 1:2. The colour, odour, taste and texture were rated as good. The texture was rated softer than the non-germinated brown rice. Germinated brown rice was found to have higher protein, fibre, vitamin B2, niacin and GABA than non-germinated brown rice. Compared to non-germinated rice, germinated rice had higher GABA: by 28.75 times in fresh germinated and 11.61 times in dried germinated rice. The GABA content was statistically reduced after cooking. Drying germinated brown rice decreased certain nutrients and GABA. Even with the drying process the nutritional value and GABA content of germinated brown rice were higher than for non-germinated brown rice.

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## Properties of soybean and plain flour blends in cookies

Lead author

**Motunrayo Olumakaiye** (Obafemi Awolowo University)

Nigeria

Legumes have been recommended as cheap good sources of protein for upgrading the nutritional quality of cereals in food preparation. Soybean has been used in various foods to mitigate the shortage of protein. The protein content of soya is considerably higher than that of dairy products and meat. Hence, cookies as a major type of snack were prepared from blends of soybean flour (SF) and plain flour (PF). Nutritional and sensory properties were determined and comparison made among the samples. Defatted soybean flour was produced by a modified method. Four cookie samples were prepared from blends of PF and defatted SF at 10%, 20% and 30% levels of substitution to obtain PSF10, PSF20, PSF30 respectively and from 100% PF (PPF). Proximate analysis was carried out on the cookie samples; mineral elements were also determined. Sensory evaluation was done using a 5-point hedonic scale. The data were statistically analysed to find out if there were any significant differences between the samples using ANOVA. Significance was accepted at  $p < 0.05$ . The results showed that the higher the SF level in cookies the higher the crude protein, crude fat and ash contents ( $p < 0.05$ ). Moisture content tends to decrease with decrease in soy flour proportion. The protein content ranged from 8.31% to 14.45% ( $10.56 \pm 0.17$ ). Cookies made from blends of plain flour and soy flour had higher crude fat contents than samples made from 100% plain flour ( $p < 0.05$ ). The ash content is an indication of the mineral composition of the samples. Sample PSF30 had the highest value of ash content while sample PPF had the lowest. PPF and PSF10 are higher in carbohydrate and crude fibre contents than PSF20, and PSF30 ( $p < 0.05$ ). All samples were low in calcium, iron and magnesium concentrations. Sensory evaluation showed that cookie samples were not significantly different in texture ( $p > 0.05$ ) but differed significantly in taste, flavour, colour and overall acceptability ( $p < 0.05$ ). SF substitution above 10% level showed steady decrease in sensory scores. It was concluded that cookies of good appearance, organoleptic and increased nutritional quality can be produced from plain and soybean flour blends.

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## Development of food products designed for children of kindergarten age

Lead author **Eli Kristin Aadland** (Bergen University College)

Norway

### Aim

In Norwegian kindergartens, bread plays an essential role in both the breakfast and lunch meal. The aim of the study was to develop bread with high content of fibre, better fatty acid composition and less salt for children in kindergartens. The bread complies with the national guidelines for healthy kindergarten meals. The bread was developed in a cooperative project between a local bakery, students and staff members.

### Methods

This study employs a comparative case study with explorative design. Three case kindergartens were selected. Sources of data were observations of children eating the bread for lunch and focus group interviews of kindergarten staff.

### Results

The kindergarten staff was of the opinion that the bread should not contain whole grain and that the crust must not be hard. By observing the children's reaction, listening to their feedback and interviewing the kindergarten staff, the children's experience of the bread was captured. The collected data were used to further improve the product. None of the children gave any feedback on the smell, only a few on the appearance and taste, while several children gave feedback on the consistency. The study shows that children have problems expressing themselves more accurately than saying 'it tastes good' when they justify their choice of food. When the adults were asked to describe the taste of the bread, they referred first of all to their own, rather than the children's, preferences. This may tell us that common practice has been that the adults' preferences often form the basis of the food choices that are made in day-care institutions.

### Conclusion

Children's taste preferences must be taken into account when food programs are decided. When developing new food products, it is important to take into account nutrition content as well as appearance, smell and taste.

Room  
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## CSD 2 Financial literacy: developing capacities

Chair **Tahira Hira**

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## The relationship between materialism and wellbeing: A call for research

Lead author **Sandra Poirier** (Middle Tennessee State University)

United States

Co-authors

**Thomas Brinthaup** (Middle Tennessee State University)  
**Maryann Remsen** (Middle Tennessee State University)  
**Hyun Ju Kwon** (Middle Tennessee State University)  
**Elowin Harper** (Middle Tennessee State University)

This paper explores how the consumption of material possessions is related to subjective wellbeing across cultures. Although materialism has been found to be negatively associated with life satisfaction according to wellbeing measures, the individual value of material possessions across cultures is not well understood. Exactly how perceptions interact with economic and social forces to affect consumption practices is not clear. We illustrate how cross-cultural research on materialism and wellbeing can benefit from conceptual, methodological, and measurement clarity.

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### The progression from lower to higher order savings motives

Lead author	<b>Sophia Anong</b> (University of Georgia)	United States
Co-author	<b>Patti Fisher</b> (Virginia Tech)	

Maslow's hierarchy of needs theory provides a basis for prioritising saving goals and can be a useful tool in financial decision-making. An adjacent category model is estimated on US survey data to expand the literature on the progression from lower order motives to higher order motives. Consumers were assumed to be rational in pursuing the adjacent higher motives category. This is not because the adjacent lower needs had been met but because of one's life stage, consumption patterns, planning horizon for spending and saving, and self-concepts about future economic well-being dictated saving priorities to reach one's full potential of self-actualisation at the top of the hierarchy. Results show that young and middle-aged single adults were particularly less likely to have higher order saving motives and more likely to have motives in the lower adjacent level. Compared to those with the longest planning horizons beyond 10 years, those with shorter horizons were less likely to have saving motives in the adjacent category higher up on the hierarchy of savings motives. Implications for researchers, educators, and advisors are discussed.

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### Money managing practices in transition economies: How findings from financial literacy surveys may inform home economics educators

Lead author	<b>Irina Kunovskaya</b> (The University of Georgia): congress presentation by co-author <b>Joan Koonce</b>	United States
Co-authors	<b>Brenda Cude</b> (The University of Georgia, Professor) <b>Joan Koonce</b> (University of Georgia)	

#### Aim

Sustainable money management is a key life skill in countries transitioning to market-oriented economies. Consumers in these countries with low financial capability are unprepared to insure their financial futures. Effective money management education requires well-targeted programs. The aims of this study are to: develop and use a money management index (MMI) to assess Russians' money management capability; describe those who demonstrate higher and lower levels of money management skills; compare money management skills across countries in transition using available data; and identify core challenges for home economics education.

#### Method

This study's conceptual framework was the model of financial capability developed by Kempson, Collard, and Moore (2005). The framework proposes that financially capable individuals demonstrate desired financial behaviours in managing money as well as in planning ahead, choosing products, and staying informed. The study's data were from a Nationwide Financial Literacy Survey (NFLS) conducted in June 2008 in Russia. The World Bank designed the survey and chose questions based on previous research. The NFLS sample was 1600 adults aged 18 and older across seven federal districts who answered 50 survey questions. A MMI was created using factor analysis.

#### Results

The results highlighted Russians' rather low capacity to manage their money including making ends meet (one-third lived pay cheque to pay cheque) and tracking expenditures (25.3%). Consistent with published reports describing financial literacy in Azerbaijan, Bulgaria, and Romania money management capability was lower among younger respondents who reported lower education, income and living in rural areas.

#### Conclusion

The results support the importance of embedding money management education in home economics programs across Russia, as well as in other transition economies. Because the concept of home economics education is relatively new for these countries, there are not many programs in place nor many players who offer them. A key challenge is to consider national and regional circumstances and, particularly, the situations of families with low incomes.

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### A conceptual model of perceived financial wellbeing: Early childhood consumer experience, financial socialisation, and financial knowledge pathways

Lead author	<b>Mohamad Fazli Sabri</b> (University Putra Malaysia)	Malaysia
Co-authors	<b>Steve B Garasky</b> (Iowa State University) <b>Mohamad Fazli Sabri</b> (University Putra Malaysia) <b>Christine C Cook</b> (Iowa State University) <b>Mack C Shelley</b> (Iowa State University)	

The issue of financial wellbeing among college students has received increasing attention. The purpose of this study is to examine the relationships between personal and family backgrounds, academic ability, early childhood consumer experience, financial socialisation, financial knowledge and perceived financial wellbeing of college students. Data were collected from eleven public and private universities across Malaysia and the sample consisted of 2219 college students. Structural equation modeling indicated that early childhood consumer experiences such as savings habits contribute to students' financial wellbeing (money saved, current financial situation, and financial management skills). Financial socialisation agents, for example, through parents and religion sources could increase college students' financial wellbeing. Financial knowledge was related to financial wellbeing. Overall, implications and recommendations for future research, teaching, and public policy are also provided for parents, college administrators, counsellors, and educators.

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### Community managed microfinance (CMMF)

Lead author	<b>Asia Kapande</b> (Tanzania Home Economics Association)	Tanzania
Co-authors	<b>Josephine Baiga</b> (FK field student, Uganda) <b>Mussa Masongo</b> (TAHEA) <b>Bundala Ramadhani</b> (TAHEA) <b>Mary Kabati</b> (TAHEA)	

The majority of rural communities have remained in chronic poverty and in need of a more integrated holistic approach. The ultimate goal of the Community Managed Microfinance (CMMF) approach 'to see and recognise every human as having the potential or strength and abilities which by providing the right environment can be unleashed to enable him/her lead a life of dignity'. This concept favours the neglected poor, in particular women. CMMF entails promotion of an integrated and holistic approach to microfinance that reaches the very poor, needy and marginalised communities that have not been able to access appropriate financial services through conventional banking. The Tanzania Home Economics Association (TAHEA) hence appreciates the need to promote growth-oriented entrepreneurs and people's continuous efforts to get out of poverty. Poverty is no permanent state, thus cycles of saving and borrowing should reflect progress and growth. Eventually linkages should be established for increased access to better financial services. There is a need to review with beneficiaries the idea of 'auction audit' as it effects group economic activities as well as steady and continuous development. The group's needs at one point will exceed the members' resource capacity and thus will need external support. Any genuine holistic approach in targeted communities cannot be just a one-year achievement. There is need for continued and regular supervision and monitoring of groups at least for three years until significant impact is realised, a firm foundation for better financial linkages is established and other cross-cutting issues for community and national development are addressed. There is very low and poor economic activity among existing and potential CMMF members. There is a need to address the business knowledge and skills gaps among the beneficiaries concurrently with the CMMF concept. TAHEA's major areas are in the promotion of CMMF and exploring opportunities of linking established groups with other developmental organisations and stakeholders to address other cross cutting issues like education, health, agriculture, water, sanitation, environmental preservation, conflict resolution and peace building. The extent of these interventions vary from one community to the other depending on the basic needs of the area and the possible linkages available. The CMMF methodology approves of membership of 15 to 30 participants who know each other and hence monitor each other as well as work towards their common interests. The groups operate under constitutions designed by the beneficiaries themselves, used to guard against conflict and misunderstanding.

Room 104	<b>EDU 05 Empowering the decision-maker: food skills, behaviours and capabilities</b>
Chair	<b>Valencia Browning-Keen</b>

146	<b>Food skills rating checklist: An evaluation instrument for use in skill-based programs in schools</b>	
Lead author	<b>Sandra Fordyce-Voorham</b> (University of Wollongong/Mentone Girls' Grammar School)	Australia

#### Aim

The aim of this study was to develop a food skills rating checklist that could be used as a food skills evaluation instrument by home economics teachers and other facilitators of skill-based programs. To the best of our knowledge, no reliable and validated evaluation instrument currently exists.

#### Method

A food skills rating checklist was developed and tested for use by two independent teacher observers. After training, the observers used the evaluation instrument to assess the food preparation skills of a group of students ranging from 12 to 17 years of age over three separate sessions over a period of 6 months. After each session, the rating checklist was refined, in consultation with the teacher observers, to clarify the descriptors.

#### Results

Preliminary results suggested that the food skills rating checklist is suitable for use as an evaluation instrument by teachers in schools. Further development of the instrument is currently in progress.

#### Conclusion

Research is currently being conducted. Initial results suggested that a rating skills checklist would have merit and application for use by home economics teachers in schools and other facilitators in community skill-based programs. The use of a reliable, validated rating checklist would provide home economics teachers with a sustainable and valuable tool to help them evaluate students' progression of food skills.

148	<b>Global promotion of good food choices via cooking skills</b>	
Lead author	<b>Glenda Gourley</b> (Food Savvy Kids)	New Zealand

Glenda Gourley and her teenage daughter, Claire, have set up a dual strategy to work with both parents (Food Savvy Kids) and children (It's My Turn To Cook Tonight). The intent is to give children the skills to be food savvy so they can take better care of themselves. Glenda's experience as a parent and teacher and her knowledge in food skills and nutrition education combines brilliantly with her teenage daughter's ability to motivate and engage children. These strategies are evidence based on best practices in nutrition education. Research shows children who can cook are more likely to make better food choices. Many studies show isolated success in teaching children to cook but are dependent on high level of adult or teacher intervention, resources and/or funding. Research also strongly supports the potential to instigate change if parents are well supported and the effectiveness of establishing good eating habits rather than correcting wrong behaviours. Food Savvy Kids and It's My Turn To Cook Tonight interpret accepted food guidelines with the reality of family life, children's personalities, timing and budgetary constraints to create a realistic approach. Often food is considered in isolation, but food is woven through many aspects of our children's lives. Many food messages are too purist and fail to have a positive effect. By harnessing the power of role models, utilising media that children feel comfortable with and can identify with, these strategies are engaging for children. The approach is fun, yet down-to-earth, practical and stand-alone. Parents are empowered to support their children gain food skills that will last a lifetime. Tools such as websites, newsletters, blogs, eBooks, books, online holiday cooking programs, YouTube and social media are utilised. This is a creative and an innovative approach addressing the unilateral concern for children's poor eating. Being internet based, it is proving to be sustainable and aims to have a global impact (foodsavvykids.com; Twitter @foodsavvykids; Facebook Food Savvy Kids; itsmyturntocooktonight.com; Twitter @itsmyturntocook; Facebook It's My Turn to Cook Tonight)

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## Segments of healthy food consumers: A literature review

Lead author	<b>Muriel Verain</b> (Wageningen University and Research Centre)	Netherlands
Co-authors	<b>Jos Bartels</b> (LEI, Wageningen University and Research Centre) <b>Gerrit Antonides</b> (Wageningen University and Research Centre)	

### Aim

Obesity is an important threat to the wellbeing of populations in many parts of the world (World Health Organisation 2011). Unhealthy dietary consumption is one of the leading causes of obesity (Westerterp & Speakman 2008). Although individuals may be concerned about their health status, as consumers, they do not always make healthy food choices. Identifying homogenous consumer groups who think and/or behave similarly with respect to food choices could be helpful in targeting effective measures to improve healthy food-lifestyles for specific types of consumers. The current study aims to provide an overview of the published studies that have segmented consumers with regard to healthy food consumption. Insights into the studied variables and the resulting segments can be helpful in understanding and targeting (un)healthy food consumers.

### Method

A literature review was conducted by searching SciVerse Scopus for all relevant articles that were published up to November 2010. The main criterion for selection was the inclusion of empirical analyses of primary data that resulted in consumer segments related to healthy food consumption. Twenty-four articles were selected for the final analysis. The variables used for segmentation and profiling consumers in the articles were categorised into different levels of abstraction. In addition to socio-demographic variables that are often used for segmentation purposes, variables on three levels of abstraction were distinguished: personality characteristics, cognitive variables (attitudes and knowledge) and behavioural variables. This distinction can be helpful in understanding those variables that are most important when segmenting food consumers.

### Results

Preliminary results show that variables in all three levels of abstraction were helpful in segmenting food-consumers. Behavioural variables and attitudes were most often used for segmentation. Food behaviours were often combined with other behavioural variables, such as smoking, drinking and physical activity. For profiling purposes, socio-demographic variables were used and, to a lesser extent, personality characteristics, attitudes and behavioural variables. In most studies, three to five segments were identified. Primarily, a healthy segment and several types of unhealthy segments were identified, including smokers, drinkers and uninvolved or unhealthy consumers, in general.

### Conclusion

It can be concluded that variables in all three levels of abstraction should be included in future health segmentations. From this study, policymakers understand which variables are the most important in distinguishing and profiling consumer groups. Attempts to encourage healthy food consumption is likely most effective when the differences in all three levels are considered across consumer segments.

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## Eating your words: Resolving food-related capability deprivation

Lead author	<b>Sarah Hoffman</b> (Carleton University, Ottawa)	Canada
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The capabilities approach attempts to outline the basic principles, and measures thereof, that have the potential to provide individuals with lives rich with human dignity. Due to the structure of the food supply system, individuals in the developed world do not have the capabilities or functioning necessary to ensure individual control over their food and food supply. The individual's relationship to food is illuminative of the capability deprivation that modern societies experience because the current food supply system fundamentally interferes with the individual's ability to live according to his or her own conception of the good. Capability deprivation, in modern society, exists in three primary ways. The food supply system, with its focus on efficiency and economics, results in a degradation of the individual's ability to achieve good bodily health and adequate nourishment. The food supply system, which does not support or allow alternative forms of food production or procurement, fundamentally opposes the capability of free association. Finally, the food supply system creates an inherent lack of functioning as individuals are encouraged to personally and structurally accept the dominant hegemony regarding food. There are two ways in which we can envision a solution

to the capability deprivation that is the result of the current food supply system. We can alter individual interactions within the economic realm, thereby resolving issues relating to health and free association. This solution is idealistic as the inherent lack of functioning within the current food supply system is a barrier to its implementation. Personal and structural changes have to occur to increase individual functioning. The resolution of food-related capability deprivation will result in a happier, healthier population and with further exploration we may find that resolving food-related capability deprivation has the potential to resolve broader food-related concerns.

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### Evaluation of a culinary skills education program for human nutrition students in a UK university

Lead author

**Susan Bailey** (London Metropolitan University)

United Kingdom

#### Aim

Limited research on at-home cooking behaviour and skills level of students presents challenges for researchers in terms of developing relevant program. Many UK-based human nutrition or food and nutrition degrees do not have an introductory practical food skills element that enhances the application of nutrition teaching. The implementation of a culinary skills program and the evaluation of self efficacy using a pre- and post-test questionnaire were designed to evaluate this. The aim of this study was to compare the pre- and post-skills achievements of Human Nutrition students following a four-week culinary skills program.

#### Methods

The research was undertaken with first-year university BSc Human Nutrition students (n=48) as the intervention group and compared with a control group (n=35) of first year general science students. All students completed a preliminary online questionnaire to measure original culinary skills. The questionnaire was validated and demonstrated reliability (Michaud in Condrasky et al 2011), but was adapted from a US context to a UK context with additional validated questions relating to cultural trends and ability to develop and adapt recipes. The 8-hour culinary skills program was then delivered by a home economics lecturer with a nutrition background. The questionnaire was then re-applied at the end of the course with the intervention group and also re-applied with the control group so that any change in skills could be perceived post intervention.

#### Results

The intervention groups displayed an increase in self-efficacy in cooking, cooking techniques and ability to develop and adapt recipes. Increased fruit, meat and vegetable preparation and use of herbs and spices were shown (p=0.05), and an increase in knowledge of culinary techniques. The control group demonstrated no difference between the pre- and post-tests.

#### Conclusion

The results suggest that an intervention that includes culinary skills development, linked with an emphasis on nutritional aspects has a positive impact on self-efficacy regarding cooking abilities. Focus group discussions post intervention has led to development of a culinary nutrition skills teaching development program and a planned series of workshops.

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### A study of terms and expressions in cooking methods in English language recipes, with a focus on liquid heating conditions

Lead author

**Nami Fukutome** (Ochanomizu University)

Japan

Co-author

**Midori Kasai** (Ochanomizu University)

#### Aim

The globalisation of eating habits has increased opportunities to learn how to cook foreign cuisines and taste them, through cookbooks and TV cooking programs. Cooking methods are explained through various terms and expressions, some giving a clear image, while others are harder to imagine. This research aims to ascertain the most easily understood terms and expressions, even for amateurs, and to determine the correspondence between them across languages. The current study aims to grasp the currently used terms and expressions in recipes and identify any vague terminology. This report examines English language recipes focused on heating liquids, a universal cooking process.

### Method

This study examined over 1000 recipes from six cookbooks on soup and stew, all published in the USA, and intended for the general public, not professional cooks. Particular attention was made to the usage and frequency of usage of the terms 'boil' and 'simmer', which are often used to describe the conditions of liquid heating. The results were compared with previous study findings which focused on terms and expressions for the water heating process collected while showing a sample video.

### Results

The verb 'boil', typically used to describe liquid heating, was often found in the form of 'bring to the boil' or 'boiling water'. It was seldom combined with adverbs like 'slow', 'gentle', 'fast', 'rapid', 'a full', and 'rolling', which can all describe water heating conditions in more detail. 'Simmer' was mostly used as a stand-alone verb or combined with 'gently', and frequently combined with a specific heating time, as in 'simmer for xxx minutes'. Many instances of an expression such as 'bring to the boil, reduce heat and simmer' were found, giving the reader a clear image that the method requires initial heating to close to boiling point. However, with recipes that instructed 'add X and simmer for XX minutes', some readers might immediately 'simmer' at lower temperatures after adding ingredients without understanding the need to first achieve a high temperature.

### Conclusion

Terms and expressions used in cookbook recipes to describe the conditions of liquid heating are very limited, compared with the variations used in actual cooking situations. In addition, the use of vague expressions containing the verb 'simmer' might lead to heating at different temperatures and thus different cooking results, considering earlier research which revealed 'simmer' is used to describe a wide range of temperatures for water heating.

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## FAM 1 Families: negotiating changes in roles and relationships

Chair

**Helena Aberg**

55

## Challenges faced and strategies to overcome: Mothers' perception regarding child's transition from preschool to primary school (first standard)

Lead author

**Kamini Rege** (College of Home Science, Nirmala Niketan)

India

Co-author

**Dhruti Maru**

The transition to primary school level is fundamentally a matter of establishing a relationship between the home and the school in which the child's development is the key focus. Involved and informed parents are less likely to be stressed about their child's transition and are able to support in overcoming the child's confusion and frustration and in adapting to the new environment. There is ample research to indicate that mothers are more involved in a child's schooling as compared to the fathers. Thus, the objective of the study was to ascertain the perception of mothers' regarding: a) challenges faced by the child; b) challenges faced by the mother; c) strategies to overcome challenges during the transition process from preschool to first standard (primary school). The sample consisted of 50 mothers of the children studying in the first grade. An in-depth interview with mothers, comprised of 37 items (open and closed ended) was implemented. Results revealed that mothers' perceived the following challenges encountered by the child: feeling anxious or shy; long hours; large range of subjects; congested and overcrowded classrooms; miscommunication. The challenges encountered by the mothers included: difficulty in understanding the child's writing; concerns regarding school refusal; inconvenient parent-teacher meeting times. The suggestions provided by the mothers were as follows: preparing the child regarding the changes in infrastructure, personnel and method of teaching in the primary level (first grade); the preschool staff could hold personal interactive meetings with mothers/parents for helping their child in transitioning; primary school should organise orientation sessions to introduce parents and child to the primary school regarding the area/layout, expectations of the school, the syllabus, extracurricular activities; inviting parents to share feedback and suggestions regarding transition. It is important to move away from the adult-structured view of childhood to seek a picture of the child through children's eyes, so as to understand transition to school from their perspective. While it can be important for children to possess and demonstrate some specific skills and knowledge, their ability to form meaningful relationships is crucial to their successful transition and influential in their later school careers (Ladd, Birch & Buhs 1999). Home and school can work together to achieve this by collaborating and providing children with positive experiences as they are initiated into school thereby facilitating a smooth transition from preschool to first standard (primary school).



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### Matrimonial websites: An emerging mediator for searching a spouse by never-married adults in Mumbai, India

Lead author	<b>Mansi Mehta</b> (Edvance Pre Schools Pty Ltd)	India
Co-author	<b>Kamini Rege</b> (College of Home Science, Nirmala Niketan)	

Gone are the days when a family priest recommended suitable matches. With the advent of matrimonial websites, there is a whole new way to find an appropriate life partner. Research indicates that 12 million urban Indians use online matrimonial searches, making it the thirteenth most popular online activity. The objective of the study was to examine the awareness of matrimonial websites in never-married adults for searching for a spouse. The sample consisted of 100 never-married adults (50 males, 50 females) age ranging from 20 to 35 years of age and living in Mumbai, India. A face-to-face questionnaire (open as well as close ended questions) was designed to elicit the desired information. The results revealed that most of the participants were aware of the meaning of a matrimonial website. A large majority of the never-married females (40) and moderate number of never-married males (32) knew the names of a few websites, such as Jeevansathi.com and Shaadi.com. Surprisingly, the majority of the participants (32 females and 33 males) were not aware of anyone who found a spouse through using a matrimonial website. Astonishingly, more than one third of the participants (43 females and 45 males) were not aware of the specific features of the matrimonial websites. Globalisation of the economy, urbanisation, increased influence of western culture and the decline in the influence of extended and joint family ties has resulted in structural holes in family networks, making it difficult for families to find suitable spouses for young adults. However, Indians have become tech-savvy and jumped on the Internet bandwagon to find the Mr /Mrs Right. This study would be an eye-opener and would also enlighten the never-married adults regarding their awareness, understanding, judgment and information regarding the features of matrimonial website.

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### Professional and social mobility: Changes in way of life and life-style – Distant relationships – Living apart together

Lead author	<b>Hiltraud Just</b> (Martin Luther University)	Germany
Co-author	<b>Jurgen Just</b>	

“Mobility” has substantially changed its social meaning. ‘Mobile society’ is associated with emancipation and progress. Physical mobility is connected to social mobility; ‘to-be-mobile’ is unalterably tied to the development of knowledge and social competences and is required as part of human potential. However, the social costs of mobility on the other hand are borne by individuals. Mobility requirements are structurally generated – analogous to other ‘work-life-balance-problems’ and as such can only be solved structurally. Individual strategies of problem solution can only be partial and temporary, which in most cases will be overtaken fast by social reality. Today an increasing number of people under duress show more willingness to be mobile and unfold their specific ‘mobility culture’. Today about 10 per cent of German couples live in a professionally caused long-distance relationship. Our qualitative study on ‘professional and social mobility’ does not only cover present mobile ways of life but also previous experiences of individuals with different mobile ways of life. Often mobile people practise different mobile forms successively (sometimes also simultaneously). For a steadily increasing number of people professional careers result in ‘multi-mobile’ characterised biographies. The mobility study focuses on questions related to mobility experiences of the couples, specifically regarding: work-life balance; motives for professional and social mobility; changes in the mobility behaviour of couples; what factors caused changes to mobility or separation; constructs at the basis of perception and everyday management of mobility. Forty interviews were conducted with singles and couples with a focus on biographies, narratives, and themes. Workshops and secondary analyses were also carried out. Several mobile professional career arrangements have been identified: prioritised male professional career arrangements (with partners in the role of household manager or working part-time); and prioritised professional dual-career arrangements. Criticism as well as suggestions for couples for a better ‘mobility culture’ should be part of consultation for social, family and economic policies – in particular the work of Equal Opportunity Commissioners.

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### Young adults returning home: What role does the family play in individuals' development?

Lead author	<b>Elyse Warner</b> (Deakin University)	Australia
Co-authors	<b>Fiona Andrews</b> (Deakin University) <b>Claire Henderson-Wilson</b> (Deakin University)	

#### Aim

Young adults, in their attempts to balance the often contradictory demands of transitions in life, love and work, are increasingly reliant on their families. The parental home, in particular, often acts as a base of operations, literally through co-residence and material assistance, and figuratively through the availability of parents as sources of advice and guidance. Focusing on co-residence, not all young adults live with their parents as a result of delayed home-leaving. Many have returned to the parental home after previously moving out. However, research into this latter transition has generally failed to uncover individuals' experiences. Instead, it has focused primarily on the analysis of trends, identifying common reasons why young adults return and predicting the likely factors associated with their move home. Similarly, research into parents' role in returning has relied on the use of statistical data and regression techniques to predict whether individuals of specified characteristics would be satisfied with the living arrangement. With most of this quantitative research being conducted in the 1980s and 1990s, there remains a need for a more detailed understanding of returning home within a contemporary family context. The aim of this study is to explore how Australian families experience the return of a young adult to the parental home after they previously moved out.

#### Methods

Adopting a qualitative approach, this study involves in-depth interviews with young adults aged 18 to 35 who currently reside with their parents after at least four months spent living elsewhere. Interviews will also be undertaken with parents and siblings who share a household with an eligible young person. Data will be analysed thematically to elicit a detailed range of perspectives on the phenomenon, insight not generally afforded with the previous use of statistical analyses based on one member of the parent-child dyad.

#### Findings

The emergent nature of qualitative research means that, at the time of abstract submission, the results are yet to be finalised. However, it is anticipated that preliminary findings will be presented at the conference.

#### Conclusion

Exploring families' experiences of home returning is anticipated to further improve both the acknowledgement and understanding of this phenomenon. Recognising home returning is important, particularly as young people attempt to navigate their own pathways and develop into adults in the context of continued reliance on their families. Findings will therefore interest those concerned with young adults, the family and the role of housing within Australian society. "

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### Communication technology and the concept of home: A comparison of qualitative methods

Lead author	<b>Gerda Casimir</b> (Wageningen University)	Netherlands
Co-author	<b>Hilde Tobi</b> (Wageningen University)	

#### Aim

Communication technology influences daily life at home amidst family but also away from home. Possibly not only in practical matters but also in ideas of what at home is, feelings of connectedness while being away. For example, a labour migrant who stays in touch with the family back home by means of email and Skype, and who remains part of the decision-making structure of that family. The present study addresses an issue of increasing societal relevance in this technological era with immense mobility among workers. It aims to add to the knowledge base on migrants' perceptions of home and will contribute to the research agenda of home economics. In addition it will help identify the strengths and weaknesses of different (systematic) qualitative data analysis methods. The aim of the present study is twofold: to explore the role of communication technology in the perception migrants have of home and their roles 'at home'. In addition, different methods of qualitative data analysis (membership categorisation analysis, domain analysis and metaphor analysis) are compared with respect to their relative added value to one another.

### Methods

Data was collected by means of semi-structured interviews with highly educated migrants, graduate students and university staff at Wageningen University. This target group was chosen because they are expected to be able to express their thoughts in English (as all graduate courses are taught in English), and this group has easy access to communication technology. To be eligible, an interviewee had to have a partner and/or children, either in their home country or in Wageningen. Interviews were held in the English language. In the semi-structured interviews, respondents were asked to describe their home, the ways they stay in contact with their family in their country of origin, and their sense of connectedness and roles in the family structure. All interviews were audiotaped and transcribed. Different methods of qualitative data analysis were applied: membership categorisation, domain analysis and metaphor analysis, using ATLAS.ti, computer-aided qualitative data analysis software.

### Results and conclusions

Preliminary analyses suggest that communication technology facilitates staying part of a distant home and being involved in daily decision-making. The different data analysis methods lead to different code schemes, and enrich the insights into the collected data.

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## PHIL 2 Building capacities through preservation of culture, knowledge and skills

Chair **Audrey Drayton**

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## The indigenous knowledge centre (IKC) in Malawi: An initiative towards unlocking Malawi's potential in socio-economic development

Lead author	<b>Lucy Maliwichi</b> (University of Venda)	South Africa
Co-authors	<b>Cecilia Maliwichi-Nyirenda</b> (Leadership for Environment and Development – Southern and Eastern Africa (LEAD-SEA), University of Malawi)	

Malawi has rich indigenous knowledge (IK). Despite the importance of IK to socio-economic development, the country has insufficient structural and institutional coordination processes resulting in the IK being neither adequately documented nor sufficiently passed through generations. Realising this gap, a non-governmental organisation (NGO) called the Indigenous Knowledge Centre (IKC) was established in 2009. The objectives of the IKC are in line with the four themes of the Malawi Growth and Development Strategy Framework. These themes are: sustainable economic growth, social protection and disaster risk management, social development and infrastructure development. The goal of the IKC is to compile, preserve, manage and promote the rich IK that Malawi has; as well as to ensure its availability to researchers, the general public and future generations. The centre's objectives include documenting and developing a database of indigenous knowledge and practices in agriculture and food security (e.g. promotion of utilisation of neglected traditional foods and traditional food storage techniques); documenting local level innovations, showcasing IK as a vehicle for raising public awareness, conservation and promoting tourism; advocating and campaigning for protection of IK, intellectual property rights and benefit sharing of IK; lobbying with policy makers and local authorities for IK related issues to be incorporated into school curricula, sporting activities (in case of indigenous games) and relevant national events. The NGO aims to document and develop a database of indigenous knowledge and practices. This will focus on the following areas:

- Health (e.g. treatment of common ailments, opportunistic infections and chronic diseases including HIV/AIDS, malaria, TB, diabetes, high blood pressure, maternal and childcare, eye disease and diarrhoea)
- Agriculture (e.g. pest and disease control, traditional seed varieties, mitigating and adapting to climate change)
- Nutrition (e.g. hunger mitigation, food utilisation and preparation)
- Socio-cultural (e.g. funerals and entertainment)
- Art and craft (e.g. body decorations).

Malawi has great potential to make inroads into research, technological development and innovation. The Millennium Development Goals and the IKC hold the key to unlocking this potential. Availability of funding is critical to achieve the objectives of the IKC and it is a major challenge facing the organisation.

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### Building your family's health history tree: An important legacy

Lead author

**Maria Young** (Rutgers Cooperative Extension of Passaic County)

United States

The objectives of this paper are threefold: to analyse the way in which one's environment, culture, values, and behaviours influence the family's medical history; to develop strategies for communicating with family members across generations for the medical history data collection process; and to utilise one's health history to adopt healthy behaviors and lifestyles, and effectively communicate with one's personal health provider. The following concepts will be covered: new genomic medical practices; definition of family health history tree; genetic and environmental health history roots; data collection resources; family communication strategies; assessment of lifestyle behaviour practices for development of personalised health plan; use of medical history lifestyle behaviours; and privacy issues. This paper addresses three issues that result in expensive medical costs. These issues are improving literacy, adopting positive health behaviors, and improving personal health management skills. Knowledge of one's susceptibility to certain diseases can help individuals improve their communication skills with medical providers, evaluate personal lifestyle behaviours, and motivate them to make changes to delay the onset of chronic diseases. The presentation includes samples of different health history forms, recommended health screening charts for men and women, and a summary of research demonstrating relationships between hereditary conditions and lifestyle behaviour changes. The educational materials can be used in school settings, faith-based health ministry programs, and inter-generational activities. The evaluations procedures include pre- and post-presentation surveys as well as a three-month followup.

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### Thinking process and body of knowledge in handicraft and native toy: Thai wisdom scholars for sustainable conservation

Lead author

**Pattamavadi Lehmongkol** (Kasetsart University)

Thailand

Co-author

**Wasaporn Nicharat** (Kasetsart University)

#### Aim

Thai wisdom comprises of knowledge, capability and skills arising from the accumulation of experiences through the learning process, selection, development and enrichment that has passed along from generation to generation of scholars. This body of knowledge is one of the most important elements of the foundation for sustainable development. Unfortunately, it is evident that this valuable phenomenon is gradually vanishing. The elaboration and synthesis of the thinking process as well as the body of knowledge that lie within the living Thai wisdom scholars is therefore extremely crucial. The objectives of this study were to decode thinking processes, collect a body of knowledge, and study the knowledge transfer of Thai wisdom scholars in handicrafts and native toys.

#### Method

The target population was six Thai wisdom scholars in handicrafts and native toys. These Thai wisdom scholars were recognised by The Office of the Education Council. Depth interview and observation were used to collect data. Content analysis was employed for data analysis.

#### Results and conclusion

Research findings indicated that Thai wisdom scholars obtained their knowledge of handicrafts and native toys from two sources, either learned from parents or learned by themselves. Their thinking processes could be recognised as meta cognition: thinking about thinking in order to develop further capability and understanding. Most of them had more than 10 years of experience. They conducted inquiry for the purpose of product development and generation of a body of knowledge. Their knowledge had been transferred to family members, school children, and people in the communities. Some of them had even set up their homes to be learning centres. They recommended that the conservation of Thai wisdom in handicrafts and native toys required: extensive promotion and public relation activities at both local and national level; the collection and dissemination of related information for further study; the supporting of an adequate budget; and the organisation of an annual contest in handicrafts and native toys. These activities should be the responsibility of the ministries concerned, including the Ministry of Culture, Ministry of Education, and the Ministry of Social Development and Human Security.

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## Developing a sustainable future for Songket weaving in Malaysia through design and innovation

Lead author

**June Ngo** (Universiti Malaysia Sarawak)

Malaysia

Songket is an exquisite piece of traditional Malay fabric belonging to the brocade family of textiles. Typically, it is woven using a combination of silk or cotton and metallic threads. The metallic threads which form the songket motifs are inserted and woven into the cloth to form patterns using the supplementary weft technique. The motif created using this technique gives the songket its distinctive appearance and distinguishes it from other types of hand-woven textiles. Songket-weaving is a craft that has more than 800 years of history in the Malay Archipelago but the number of skilled songket weavers has dwindled due to a combination of factors which include low income of artisans and the monopolistic practices of middlemen who control the local market for the fabric. As a result, the craft is in great danger of disappearing over the next twenty or thirty years if nothing is done to address the factors causing its decline. In 2008 the Tuanku Nur Zahirah Foundation (YTNZ), a foundation established by the Queen of Malaysia, started a flagship program to bring about the revival of the songket. The Foundation emphasised the preservation of the songket-weaving craft by developing the skills of young and under-privileged women to produce contemporary and high quality songket. Through its Royal Terengganu Songket label, the Foundation funded extensive R&D which enabled wider application of the fabric beyond its use in traditional apparel. The Foundation also found workable solutions to make songket-weaving a viable career option for young persons living in semi-urban and rural areas. This paper begins with a brief outline of the history, processes and challenges faced by songket-weaving cottage industry in Malaysia. This is followed by a discussion of the model applied by the YTNZ to overcome disincentives inherent in traditional craft industries. The innovative approach used to produce contemporary songket at the YTNZ's Sarawak workshop will also be highlighted.

500

## Culinary practices: Traditional Basotho bread

Lead author

**Pulane Nkhabutlane** (National University of Lesotho/University of Pretoria): congress presentation by co-author **Gerrie E du Rand**

Lesotho

Co-authors

**Gerrie E Du Rand** (University of Pretoria)  
**HL de Kock** (University of Pretoria)

### Aim

Lesotho is a small country (30,350 sq km) completely surrounded by the Republic of South Africa. The people of the kingdom of Lesotho are referred to as Basotho. In Lesotho, like all developing countries, westernisation and urbanisation are continually changing the traditional ways of preparing and consuming food. The different ingredients, preparation methods, flavouring and presentation of food for a particular region are referred to as culinary practices. The aim of this study was to investigate culinary practices of traditional Basotho bread in order to document and form a base for the standardisation, descriptive and consumer sensory evaluation of traditional Basotho bread recipes.

### Methods

Mixed methodology using both qualitative and quantitative techniques was employed for this study. Recipes for 10 traditional Basotho bread were obtained through the use of five focus groups each consisting of 10+ housewives from the five districts of Lesotho. These districts are a true representation of the country in terms of rural and/urban and cereal production. A total of 253 women respondents from the regions completed a questionnaire on knowledge, preparation and consumption frequency of traditional Basotho bread.

### Results and conclusions

The results revealed that respondents still prepare bread at a household level using wheat flour (99%), maize flour (15%) and sorghum flour (5%). The main preparation steps were identified as sorting and cleaning of grains, dry milling and/wet milling, fermentation and cooking. Although bread is widely used for important social functions such as Christmas, the Kings' birthday ceremony, burials and gathering of help teams in Lesotho, the younger generation have stopped preparing various types of bread. The information from this study suggests that culinary practices of traditional Basotho bread are gradually disappearing. It is important to document traditional culinary practices of traditional Basotho bread to ensure continued knowledge for younger generation in order to establish sustainable traditional culinary practices and also to encourage utilisation of available resources. It was also concluded that maize and sorghum flours enable individuals to produce bread at low cost contributing to global wellbeing of the poor nationally and internationally.

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### Are we caring for our textile treasures?: A Maltese perspective

Lead author

**Jill Camilleri**

Malta

Historic and modern creative works of applied arts exist throughout the world. As home economists, textiles are an important part of our expertise; so how can we ensure today's creative textile works of art will survive for future generations? Natural textile fibres deteriorate at different rates due to the inherent properties of a particular type of fibre, the manufacturing processes, exposure to adverse environmental conditions, pest and mould infestations as well as inappropriate methods of handling, display and storage. The general chemical, physical and biological factors that contribute to the deterioration of our textile items will be discussed, while the cultural heritage and traditions in the use of liturgical textiles will provide the context for this presentation. A study of eight eighteenth-century liturgical vestments made of silk and embellished with metal threads was carried out in 2005 in four museums, none of which had controlled environmental conditions such as dehumidifiers or air-conditioning units. The study was carried out over a period of seven to eight months using portable electronic data loggers to monitor, at hourly intervals, changes in relative humidity, temperature and exposure to light, within the display cases. Pictorial representations of the results of the study reveal significant rapid variations in relative humidity, temperature and changes in exposure to light, all of which contribute to the deterioration of natural fibres, particularly silk fibres. Variations in the environmental conditions inside buildings also apply to the display, use and storage of household and personal textile items as well as to works of art created entirely or partly from textiles. During this presentation, suggestions for the care, handling, display and storage of historic and modern textile items will be provided in order to help in the preservation of textile items and prolong their lifespan. This will enable future generations to appreciate the techniques and craftsmanship of historic textile items as well as those currently being created. This presentation will be of interest to all home economists, teachers of textiles, design and fashion, textile artisans and those responsible for the care of our textile treasures.

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### TEX 2 Sustainability in textiles: agendas, actions and markets

Chair

**Mary Turner Gilliland**

99

### Could green values and green consuming promote the Finnsheep? – aspects from past and present to the future

Lead author

**Riikka Raisanen** (University of Helsinki)

Finland

#### Aim

The aim of this research is to study how the native sheep species in Finland, the Finnsheep, has survived over the years and how the utilisation of this local domestic animal could be promoted. The interest is especially laid in the wool of Finnsheep, its characteristics and ways of application. In previous days the sheep was an essential animal to every family in Finland because the society was long self-supporting and sheep provided important textile fibre wool, fur and leather as well as meat to eat. Over the years the population of Finnsheep has declined radically even though that there have been many attempts to support the farming and further utilisation of wool, fur and meat.

#### Method

The research material consists of articles in newspapers and magazines from 1915 to 2011. In addition, project reports and material available in the internet were studied. We also made felting experiments with Finnsheep wool and Merino wool and tested them with selected ISO standard tests to study the properties of felted materials. The research method was qualitative content analysis for the written materials and quantitative method for the experiments.

### Results

The research material shows that in spite of the numerous projects and edification little progress has been made to promote the farming as well as the utilisation of Finnsheep wool in products offered in a large scale for consumers. The felting experiments show that Finnsheep wool has similar properties compared to Merino and its rubbing fastness seems to be even higher. However, the analysis of the articles reveals that the quality of the wool fibre which is sent from the farms to the spinning mills varies a lot. Thus, when the first sorting of the wool on the farms is inadequate, the spinning mills have difficulties to further process the wool. Also, the amounts of pure Finnsheep wool are small and insufficient for industrial scale spinning. The low price of the wool fibre does not encourage farmers to pay attention to the quality of wool. The main focus is on the meat production.

### Conclusion

The current trends such as green consumption, slow life, locally produced items and services, comprehensive experiences, supporting biological and cultural diversity etc. could have a positive influence on the Finnsheep. However, a lot of co-operation and positive attitude is needed between different stakeholders. High quality and novel design are key factors for products.

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## Sustainability in apparel markets: What is the potential market share for cotton products with characteristics of sustainability and transparency?

Lead author	<b>Pamela Norum</b> (University of Missouri): congress presentation by co-author <b>Jung Ha-Brookshire</b>	United States
Co-author	<b>Jung Ha-Brookshire</b> (University of Missouri)	

### Aim

The importance of sustainability in the marketing of cotton apparel products was of interest in this study since concepts such as sustainability, transparency, verification and certification are now keywords that permeate the textile and apparel industry of the 21st century (Marquardt 2010). This study focused on identifying potential niche markets for cotton apparel based on the attributes of sustainability and transparency.

### Methods

Data were collected from a national sample of US households (n=500) through a telephone survey. Using conjoint analysis, the relative importance of product attributes and the potential market shares for products with different levels of each attribute were estimated. The product attributes included price (low, medium, and high), US grown cotton with transparency (versus unknown origin), and farming practice (sustainable versus conventional). Twelve market segments were identified along with their estimated market share.

### Results

Cotton apparel with the combination of low price, US grown fibre with transparency, and sustainable farming garnered a 32.2% market share. The next largest estimated market share was for the combination of low price, transparency, and conventional farming (26.4%). At the medium (high) price level, the market share for the combination of transparency and sustainable farming was 6.6% (5.1%) while the combination of transparency and conventional farming was 5.7% (2.5%).

### Conclusion

The results from the market share analysis indicate that US consumers would like to have it all-low price, US grown cotton with transparency, and sustainable farming practices. Although a product with all of these attributes would be difficult for many businesses to offer, it does show that if the price is low enough, consumer interest exists. However, there may be potential niche markets (that are willing to pay more) that could be targeted by cotton producers, apparel manufacturers, and selected retailers. The market share combination containing transparency without sustainable farming was consistently larger than the market share for sustainable farming without transparency, at each price level. This research indicates that niche markets exist for consumers who are willing to pay for both sustainability and transparency, but the attributes of the consumers in these market segments needs further exploration.

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### Study on core agendas for sustainable development in the fashion industry

Lead author

**Mi Young Son** (Korea National Open University)

Korea

Environmental issues are gaining more importance in the fashion industry, especially in this 21st century. We live in a world where we need to deal with the environmental crisis on a global level and pursue sustainable growth to maintain human civilization. The fashion industry and sustainable growth are in fact correlated to each other in both negative and positive ways. And for a long time many efforts have been made to improve such negative correlation between the fashion industry and sustainable growth. This study looks into the agendas and practical actions, related to the global environment, that have been carried out in the fashion industry, and tries to find out what environmental agendas should be finalised for further sustainable development in the fashion industry. As such, this study examines i) how the comprehensive concept of 'sustainable development' is currently applied (communicated) in the fashion industry; ii) how the concept should be expanded as a category in the fashion industry; and iii) the agendas needed for further 'sustainable development' in the fashion industry. The practical concepts of sustainable development used in this study are i) generational equity that calls for preservation of the environment for future generations; ii) sustainable use that does not go beyond the regenerative capacity of natural resources; iii) equal use of natural resources that brings about fair and equal distribution of interest; and iv) integration of environmental and economic development that takes into consideration the environment when it comes to economic development. This study has set the world, countries, markets and consumers as basic areas of the agendas and examines the agendas in terms of society, culture, law, economics, science and technology, and the environment. The fashion categories studied in this paper are: thread and textile; design and marketing; production; sales and distribution; and consumption and disposal. The following tasks are necessary to achieve sustainable development in the fashion industry:

1. Strengthening regulations on the global and national level for a fair and equal distribution of interest in the fashion industry, including the production and distribution networks
2. Rationalisation and actualisation of reverse channels and recycle channels in the production, disposal and logistics system
3. Seeking economic rationality in production and consumption
4. Seeking joint achievement among marketers, producers and users
5. Setting up new fashion values (fashionability, fashion design, fashion products)."

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### Wool's role as part of a lifestyle of health and sustainability

Lead author

**Paul Swan** (Australian Wool Innovation Limited)

Australia

Consumer demographic and expenditure trends, combined with increasing economic and social pressure to act as 'good global citizens', are affecting fibre choices for clothing and interior textiles. Affluent consumers around the world are increasingly acting as conscious, ethical, and climate-risk-adverse investors. In this changing consumer environment, natural, renewable, biodegradable fibres such as wool can offer an increasingly compelling point of difference. For wool, which has been clothing and bedding humans for millennia, these consumer trends and recent fibre, product and marketing innovations represent specific opportunities. This presentation considers the role of wool as an apparel and interior textile fibre, in the context of these rapidly changing consumer market dynamics, and reviews efforts within the wool industry to respond to these challenges. Specific technical features of the wool fibre are reviewed, including hygral, thermal, flammability, and allergenicity attributes. Current research exploring wool's role in achieving wellness outcomes for individuals and households are considered. Specific marketing programs are considered which seek to inform consumers of wool's role as a fibre consistent with consumer concerns for global wellbeing.



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## Sustainable development of products from post-consumer textile waste

Lead author	<b>Suman Mundkur</b> (College of Home Science, Nirmala Niketan)	India
Co-author	<b>Ela Dedhia</b> (College of Home Science, Nirmala Niketan)	

### Aim

The consumption of textiles is increasing on a global scale. Changing fashion trends lead consumers to discard garments faster than needed. They are re-used or a source of raw material for developing household and industrial products and prevent wasteful throwing away in the landfill. The aims of this study were 1. To gain an understanding of garment collection, reuse and recycling and 2. To explore existing products developed from used garments and their marketing activities.

### Method

Exploratory research design: field research by non-participant observation and personal interviews of key informants from NGO and stakeholders like wholesalers, weavers, shredders in the recycling industry. Non-probability convenience sampled in seven Indian cities using snowball technique.

### Findings

Collection of discarded garments is done by rag collectors from door to door, retail drop-boxes and buy-back schemes, collection centres run by charitable institutions and non-government organisations. There is a demand for second-hand clothes collected and imported from western countries. In households, garments are converted to a variety of utility products like bags, pouches, folders, bedcovers etc. Discarded garments from urban households are a valuable resource for the nationwide distribution to those in need. This initiative is taken up by GOONJ, an NGO involved in re-use of waste. Several rural programs have been taken up, for example the construction of bamboo bridges, crop protection and shelter shades. Used cloth has been extensively used in disaster management as in the recent Sikkim earthquake and Orissa floods of 2011. Products in commercial production are utilised for furnishing. The textile recycling industry uses non-woven felts made by shredding of the garments to fibrous form. The process involves sorting, shredding, baling. Sorting is done by colour which eliminates the need of colouration of the product. There is a demand for carpet yarn from manufacturers of carpets, bedcovers and blankets. The cotton linters that are unsuitable for spinning are sold by weight for filling mattresses, pillows and quilts. Synthetic waste fibres from mixed garments are used for floor mats, rugs and carpets. There is no labelling system, therefore it is difficult to know by visual examination the products made from virgin fibres and those made from reclaimed fibres. Technical textile applications include automobile roof liner, trunk liner, dashboard silencers for acoustical and heat insulation and carpeting. The possibility of further utilisation for home interiors, reinforcing concrete for construction and agro-textiles needs to be explored.

### Conclusion

Consumers, NGOs and the recycling industry play an important role in channelling post-consumer waste into value-added products. Reuse is a step ahead of recycling as it extends the life of the product. There is a sustainable future for the textile recycling industry as it will have to gear up for all that the fashion industry will throw its way.

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## 3Fish: Changing the world, one ethical, sustainable garment at a time

Lead author	<b>Natalie Dillon</b> (3Fish)	Australia
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Early in 2008 3Fish was established with a simple, yet compelling guiding ethos: Do the right thing. This seemingly simple principle has since governed every decision made in growing the business to where it is today. In setting something so overwhelmingly simple the business created is at the forefront of sustainable business practices, and is a leader in creating and facilitating change and inspiring innovation in environmental, social and economic sustainability across a wide variety of channels. 3Fish is, at its core, an ethical and sustainable clothing company. We design and make lovely clothing that people feel great about wearing, on every level; we aim to create the most sustainable clothing on the planet. Our retail label of the same name, is sold in about 50 independent retail boutiques around Australia. We also work with a broad range of organisations – not-for-profit organisations, large and small companies, bands, and a growing suite of clients in the hospitality sector who are interested in producing quality garments, caps and bags that are well made, and of course use fairtrade, organic cotton, organic dyes and inks that are largely carbon neutral. Our sustainability initiatives extend the length and breadth of our global supply chain, are evidenced by our commitments

to our third party independent accreditations, and are as local as the design of our garments, the car we drive, and the location of our office, the packaging we use, and the communication messages we employ to sell our products. 3Fish has produced over 100,000 Fairtrade and organic cotton products, using organic dyes and inks, recycled packaging, and producing garments carbon neutral, saving an estimated 11.3 tonnes of toxic chemicals from being used. 3Fish as a key driver of fairtrade cotton sales in Australia has become a key part of the chain that will contribute to stopping inter-generational poverty in its tracks. The challenge of course is to not only begin the monumental task of turning the tide of thinking and purchasing behaviour right now, but also to shift the awareness, understanding and beliefs of the generations hence. We need to equip those who are yet to shape the world with questioning minds and with a strong ethical compass. Of course we need to educate people about the mechanics of supply chains, about where things come from and how the way we use and buy products greatly effects the structure and compromise of ethics along a supply chain. But the single biggest thing we can do is inspire our young people to ask all the questions they need to, to form an opinion of their own, to think innovatively, and to lead lives that not just do no harm, but proactively create a better, healthier, more prosperous future for all.

Room  
110

### EDU 4 Evaluating home economics curriculum: Case studies from around the world

Chair **Noriko Arai**

218

### The functionality of Finnish basic education curriculum: Home economics as a key component to implementing sustainable futures through everyday schooling

Lead author **Katriina Sulonen** (Finnish Educational Evaluation Council)

Finland

An evaluation of the national curriculum framework for basic education was completed by the end of 2010. This was organised by the Secretariat of the Finnish Higher Education Evaluation Council with the assistance of an expert group consisting of teachers, school principals and researchers.

The aim of this project was to research:

- the functionality and implementation of the curriculum
- evaluation of objectives and content areas and their relationship with the distribution of lesson hours
- how effective the curriculum is
- whether the preparation process and implementation of the curriculum framework was suitable for all co-workers
- whether the global issues had been taken care of.

The data was collected in 2009. The data were gathered with group and individual interviews, written and electronic questionnaires, documents and school visits. The informants consisted of politicians and state officials, municipal education officers, school principals, teachers, parents and students (4250 informants were involved). The basic education curriculum system works well. Satisfaction with this system is wide. It can be said that the distribution of lesson hours – at least where the meaning of the phrase is understood – is complied with, but its functionality as a whole must be accompanied with a number of suggestions for improvement. The satisfaction with the curriculum system is partly explained by the success of preparation and implementation processes of core curricula. The functionality of the core curriculum is visible, for example, in the improvement of its ability to steer when compared to the past core curricula. The factors that have influenced the improved functionality are, for instance, the local curriculum processes. There are some differences that arise mainly from the manner in which different groups of respondents have been involved in the curricula. Based on the results and the conclusions, the following general development needs and proposals for the curriculum system should be put up for discussion:

1. Pedagogical functionality of the topic modules must be improved
2. Co-operation among home economics, arts and physical education should have more global perspective
3. The criteria of pupil assessment should be developed by adding incentive assessment, consistency and equality
4. The educational partnership between the home and the school should be strengthened and
5. The ability of the curriculum to steer the teaching and learning process should be strengthened by improving the teaching conditions of teachers and by developing teaching materials and the core curriculum.

Global and individual wellbeing should be taken as a core theme for the Finnish educational system which means that the perspective of home economics curriculum should spread widely from the individual, the school and the neighbourhood community.

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### Where has ‘family’ gone?: Reading senior school home economics education texts

Lead author

**Cathleen Farrelly** (La Trobe University)

Australia

#### Aim

With the forthcoming implementation of the new Australian curriculum along with our own work on ‘future-proofing’ the field of home economics, it is timely to consider the values and ideologies that underpin our current home economics curriculum. Curriculum guides or syllabi establish the ‘discursive contours’ by which home economics education is perceived and implemented. Thus curriculum texts influence both pedagogy and public perceptions of what constitutes knowledge, the successful student and normative values in home economics. A key concern of home economics is ‘family,’ yet there is a notable lack of research on how home economists conceptualise and understand ‘family’ despite considerable effort expended on revisioning home economics education. This paper reports on a critical discourse analysis (Fairclough 1992, 1995, 2003) undertaken on the two most recent Victorian Certificate of Education (VCE) Health and Human Development study designs, focusing on the textual devices used to conceptualise ‘family’.

#### Method

This approach attempts to go beyond post-structural ‘disruptions’ of discourse, to identify ideological investments embedded in the language of home economics curriculum texts around ‘family’ which creates, or fails to create, opportunities to promote diversity, inclusiveness and social justice.

#### Results

The analysis reveals both the removal of ‘family’ as a focus of the subject and the recasting of ‘family’ as a determinant of risk.

#### Conclusion

The need for a conversation within home economics about the way ‘family’ is conceptualised and the intentions of the field for ‘family’ is outlined.

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### Different strategies for teaching consumer issues in home and consumer studies

Lead author

**Ulrika Bergstrand**

Sweden

Consumer issues were important during the Swedish education reform in 2011, Lgr11, and home and consumer studies got new and reinforced directives within the subject during the process. The new structure included a core content i.e. a compulsory content for the teaching. The previous syllabus, 2000, lacked this core content and it was instead left to professional freedom to decide on content when following the directions in the syllabus. The teacher at the same time needed resources for teaching, for example textbooks. These supply concrete content to the teaching which has raised an interest in studying the contents of the textbooks. The objective of this master’s thesis is to examine the content on consumer issues in textbooks within Home and Consumer studies. Three teaching materials for pupils in years 6–9 (ages 12–16) have been analysed in the thesis and the subject of the study is the syllabus from 2000. In the texts that have been analysed the following questions have been used: Which texts do include consumer issues? Which kinds of teaching strategies are supplied in the teaching materials, concerning texts with contents regarding Home and Consumer studies? Curriculum study implications were considered in relation to steering documents and to what the pupils learn. According to Bjurström and McGregor (2004/2011) the process of consumption been defined to narrow down the subject of consumer issues. The content from the teaching materials, which accordingly have been defined, has been included in the study. The method of analysis is a form of textual analysis regarding teaching strategies (Kronlid et al 2010). The teaching strategies have previously been developed and applied to the teaching of sustainable development. The three teaching strategies used in the analysis are: factual orientation, norms and values and pluralistic strategies. According to the study, the teaching materials have contents which mainly exist within the standardised strategy, limited within factual content and pluralistic content is nearly non-existent. However, this goes against the Syllabus 2000 which directs that the pupils should have the opportunity to choose and reflect their choices.

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## Changes in home economics in recent years in Estonia and expectations for the future

Lead author **Kristi Paas** (Tallinn University)

Estonia

Estonian society has undergone several significant educational changes and years of work resulted in a new curriculum in 2010. The new curriculum was implemented in schools in the autumn of 2011. The aim of the presentation is to reflect upon changes that have been taking place in home economics in recent years and to find out whether there have been any changes in teachers' attitudes and expectations. This study is based on a survey of handicraft and home economics teachers that was conducted in 2004. The results of the survey were formulated as suggestions: 1) how to modernise the syllabus of home economics for general education schools and 2) what kind of support in-service teachers need. In order to clarify teachers' perceptions and expectations regarding the new curriculum and to see whether these have changed over time, a similar questionnaire will be carried out in 2011. The new curriculum has extended the concept of home economics education. Due to changes in the society the proportions of various learning objectives within the subject have been reconsidered and the selection of topics have been improved. Particularly, home economics education has been prioritised as the training for the acquisition of knowledge and skills needed in everyday life. In the curriculum, close attention is paid to gender equality to guarantee that both girls and boys acquire the skills needed for everyday life. The organisation of training should take into consideration the specific interests of pupils. The results of the 2010 survey show the perceptions of Estonian teachers towards the new curriculum. Besides that, the survey allows to analysis of whether the teachers have changed their attitude towards the subject and are aware of the contemporary nature of home economics (food preparation versus nutrition and consumer education). Perhaps the Estonian historical tradition – only girls in home economics classes – is about to change and we will move towards a more equal society. To strengthen the position of home economics education in schools it is important to know the perceptions of teachers towards the subject. The results of the study indicate the way we should develop the teaching of the subject (study materials etc) in Estonia. In addition, it helps us to compare our position among other countries where home economics is taught.

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## Investigating the issues that could shape contemporary home economics curriculum in South Australia

Lead author **Caitlin Hinds** (University of South Australia)

Australia

### Aim

Research (Pendergast 2001; IFHE 2008) would suggest that it is timely to investigate the potential for the curriculum of home economics to be made more appropriate to contemporary classrooms. However, there has been limited research in the field of curriculum development in home economics. The current restructuring of a national curriculum provides further impetus for research in this field. This paper presents the findings of an honours study which sought to identify the issues that secondary teachers and students indicated as being critical in shaping a contemporary home economics curriculum. The paper also explores the identified benefits that a contemporary home economics curriculum could have in 'future-proofing' (IFHE 2008) the subject.

### Method

The study undertook a qualitative social research orientation to investigate the values, beliefs and opinions of the executive committee (South Australia) members of the Home Economics Institute of Australia (HEIA), practising home economics teachers and year 10 home economics students. Participants were engaged in focus group discussions and semi-structured, one-on-one interviews.

### Results

The collected data indicated several findings that could shape contemporary home economics curriculum in South Australia. These were made up of the following themes:

- Status of home economics
- Engagement and appeal of home economics for contemporary students
- The nutrition debate
- Environmental sustainability
- The place for social justice.

The findings for this study drew on the insights provided by the participants and were analysed and discussed in the light of current literature.

### Conclusion

The conclusions drawn from this study indicate that there is a great need for home economics to become more engaging and contemporary for students. Evidence would suggest that issues including the integration of ICT, placement of nutrition and environmental sustainability education and the value placed on individual and family wellbeing could shape future home economics curriculum. The prevalence and influence of the hospitality industry in contrast to a traditional home focus could also shape contemporary home economics curriculum. Findings from this study suggest further that there is a need for greater collaboration among home economics teachers when designing curriculum and for the aims of home economics education to be discussed in regard to future practice.

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## Perspectives of the Samoan food and technology curriculum

Lead author

**Moemoe Soti**

Samoa

The aim of this research was to examine perspectives concerning the food and textiles technology (FTT) curriculum in secondary schools in Samoa. Specific attention was directed to identifying the factors that impeded/supported the successful implementation – observations by the researcher indicated that teaching and learning in that curriculum area was not being positioned well in the education system. Results from the data, obtained via observations, interviewing and document analysis, indicated that there were four key themes: the importance of professional development (PD); the development of effective teaching strategies; the role of the Ministry of Education, Sport and Culture (MESCC) and the role of the school governance authorities.

Room  
111

## HTS 1 Sustainable use of domestic appliances: design and behaviour

Chair

**Rainer Stamminger**

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## Development of sustainable appliances: integrating technology on a creative design process.

Lead author

**Santiago Alonso Plata-Amarillas** (Mabe SA de CV)

Mexico

Co-authors

**Martha Hecht-Aguilar** (Mabe/GE)  
**Edgar Rene Aranda-Sanchez** (Mabe/GE)

As the world becomes smaller in terms of having quick access to new products and technologies, organisations and individuals must be innovative and continually create new knowledge and ideas to deal with this rapid change. Therefore, innovation plays an important role in not only the development of new business, process and products, but also in competitiveness and success of any organisation. Climate change is recognised as a significant global environmental challenge and as a consequence is compelling the industry to move forward and develop new and more efficient solutions, technologies and products because of said behavioural change. Initiatives that deal with the development of creativity and innovation in products that promote eco-innovation must be focused on identifying and modifying the usage of natural resources to increase the chances of creating new and significant products or services. Promoting the development of products with the industry-leading energy-efficiency performance yields a more competitive environment where consumers can make a smart choice for a green product with the confidence that its performance will be as good as a regular one. Creative solutions focused on eco-design and sustainability considerations in appliance development will be discussed in this paper as an example of the developing process for green products considering consumers' needs, sustainability criteria and regulatory requirements. Focusing on Latin America, which is a developing region, design challenge is also cost driven, as most of the target consumers have medium-to-low incomes to buy an appliance but on the other hand, are the ones that greatly demand the efficient usage of resources (energy, water, gas).

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### Practices in using and handling household chemicals and cleaning products

Lead author

**Mona Sharaf Abdelgalil** (Alexandria University)

Egypt

Previous studies have suggested that many skin, respiratory and cancer diseases are associated with exposure to chemical compounds within the home and that the health of family members is affected. The objective of this study is to investigate homemakers' practices and perceptions of the use and handling of household cleaning products using qualitative and ergonomics methodology developed to reveal skills involved in daily household work. The study seeks to answer the question of what the homemakers' practices and perceptions are in using and handling household chemical cleaning products. A checklist and an open-ended questionnaire were used in which the respondents were observed and asked about the frequency of performing cleaning tasks, average monthly consumption of detergent, strategies employed for mixing products, various habits employed in cleaning, storage practices, strategies for personal protection, and sharing in cleaning with family members. A non-probability sample of 228 volunteer homemakers consisted of both those in paid work and non-employed with different levels of education; 38 homemakers (all women) agreed to be observed during household chores. Data were analysed with the SPSS software program. Results showed that there is little evidence reported of the behavioural component of the level of exposure to chemical cleaning products. All of the homemakers performed domestic chores. Girls share in domestic chores in 65.78% of families. Women stated that they over-consumed detergents. They mixed different detergents together: 32.63% of participants mix chlorine with dishwashing detergent, 15.78% of participants mix it with toilet bowl, and 65.78% of participants mix chlorine with laundry detergent. Regarding storage, 84.21% of participants stored detergent in the kitchen, 15.78% stored detergent next to food items. For precautionary measures: 28.94% of participants wear gloves to protect hands against detergents, skin sensitivity, or redness or itchy or dry skin during the washing process. The majority of the participants did not wear gloves during domestic work and did not follow the label directions. Significant correlation was found between use, duration, quantity of consumed cleaning products and each of the respondents' age, education, work, residential region and the number of children. Significant differences were found between the employed and non-employed homemakers in the time spent in dishwashing, cleaning windows, floors and bathroom, in the quantity of consumed laundry detergent, in the frequency of dishwashing and cleaning floors, and in the measures of precaution and safety. The participants were consistently exposed to chemical detergents and minimal precautionary measures were taken. Cleanliness and hygiene have a strong cultural value to the women in the sample, who prioritised those values over excessive exposure to chemicals.

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### Acceptability of using electric blender to produce fura for training women in Kaduna state instead of manual methods

Lead author

**Sidikatu Ajayi** (Ahmadu Bello University)

Nigeria

Co-authors

**Alabi Fumilayo** (FCE)  
**Abbas Hajara** (College of Agriculture)  
**Bamali Halima** (FCE)  
**Ojo Titilayo** (Ahmadu Bello University)

Fura is popular terminology for the food mixture made from cereals (millet) and milk (nono) among the Fulani and Hausa tribes in Northern Nigeria. The processing and mixing of fura is normally the work of the Fulani and Hausa women but now the preparation is gradually moving to others (men and other tribes). Hence this study investigates the sensory, shelf life, time evaluation and acceptability of Fura using both a blender and the traditional method of preparation. A laboratory-based experiment was used to carry out the research. The result showed that blended fura was faster and was accepted by many students (58% for blender mixed and 30% handmixed), but the hand-mixed fura had the highest keeping quality. From the results of this study, the original sellers should be trained on how to use technology to quicken the production and keep the women in the business so as to minimise poverty.

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**Sustainable laundering habits**

Lead author	<b>Gwendolyn Hustvedt</b> (Texas State University)	United States
Co-authors	<b>Joanne Emmel</b> (Virginia Tech) <b>Mira Ahn</b> (Texas State University)	

**Aim**

The sustainability of the hot water system in households is dependent to a certain extent on the selection of energy- and water-saving technologies for bathing, dishwashing and clothes laundering. However, even the best technology is only as sustainable as the methods that consumers employ when using this technology. The laundry system, for example, requires consumers to select and properly use detergents and additives, make choices of settings on both the clothes washers and dryers and choices about the size, content and timing of laundry loads. All of these consumer decisions contribute to the consumption of water and energy. Exploring the laundry habits of consumers will allow home economists and other consumer educators to design educational programs that will improve the sustainability of households. While studies on laundry habits have been conducted in countries around the world, a study that specifically examines sustainable laundry behaviours has not been previously conducted in the US.

**Method**

An internet survey of 366 randomly selected US consumers was designed to elicit a variety of detail surrounding the laundry system. In addition to demographic questions, participants were asked about the nature of their water supply and how they pay for water, which could be influential in their motives for water conservation. The survey also explored the use of cold-water washing and the rationale behind the choice to use cold water.

**Findings**

Far more participants (53%) reported very often or always using cold water for the wash cycle than very often or always using hot water (14%). When asked how much savings on their monthly utility bill would motivate using only cold water for laundering, a majority (54%) said they would need a savings of more than \$10; however, of the 74 participants who reported only using cold water 47% estimated that their savings were less than \$5 a month. The motivations given for using cold included saving energy or money, with 58% agreeing that they use cold water to save energy and 54% agreeing that their motive was to save money. Far more participants (68%), however, said they use cold water to follow the clothing tag instructions.

**Conclusions**

The results suggest that efforts encouraging clothing manufacturers to label clothing for cold water will have more impact on consumer behaviour in the US than educational programs about the cost savings of using cold water.

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**Tension arches – challenges to modern house design**

Lead author	<b>Anne Malin</b> (University of Helsinki)	Finland
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The aim of the research project was to develop home economics classrooms to be flexible and versatile learning environments where household activities might be practised according to the curriculum in different social networking situations. The research is based on the sociocultural approach. The aim of this abstract is to study how housing, household activities and home technology have changed in our society. The focus is in kitchen and laundry work. Household activities are considered practical and dynamic. Everyday activities are in constant interaction both with the society and the changing sociocultural environment. Household activities relate to basic human needs such as housing, food, clothes and care (Haverinen 1996). Rapid technological development and changes in women's status have influenced people's everyday lives and household activities. During the past decades domestic appliances developed very quickly and offered help for women with very hard work such as carrying water. At the same time kitchen and bathroom planning began to take a functional point of view. For example, the first and very famous kitchen furniture in Finland was innovated in 1944 by Maiju Gebhard (1955). It was a special unit for dish washing, a dish-drying cabinet. It saved quite a lot of time for other household tasks. Nowadays the usage of this unit has changed, but it still is one of the basic kitchen units in Finland. These changes have caused tension and pressure between traditional household work and new activities in homes. One of the research tasks was to analyse the historical development of household activities. It contains a historical analysis of how social changes have created tension between traditional household classrooms and new activities in homes. For this purpose a new theoretical concept, the tension arch, was introduced. The functionality criteria for home economics classrooms were developed based on this concept. These include technical, functional and behavioural criteria (Malin 2011).

## Symposium

Room 106	<b>SYMHEA 3 What did we learn from the 3–11 disaster and how do we need to reconsider a sustainable life?</b>
Chair	<b>Dr Midori Otake</b>
Presenters	<b>Dr Midori Otake</b> (Tokyo Gakugei University) <b>Dr Michio Miyano</b> (Osaka City University) <b>Dr Yoko Ito</b> (Chiba University) <b>Dr Kuniko Sugiyama</b> (Yokohama National University) <b>Prof Kei Sasai</b> (Japan Women's University) <b>Dr Noriko Arai</b> (University of Fukui)

When the 3–11 catastrophic earthquake hit Japan, we were forced to reconsider our wealthy and convenient lifestyles. After the disaster, we had no choice but to live on a few things and items, and that made us realise what a truly worthwhile community is. In such a community, people help each other and guarantee each others' safety. It is nothing but a pursuit of 'a sustainable life'. It is time for people studying Japanese home economics to share what we have learned from this painful and unusual experience. In this symposium, we would like to think about the importance of a sustainable life and of the processes of how Japanese are trying to restore their lives. First, we will present information on what was needed fundamentally to survive in the stricken area soon after the calamity. Second, we will discuss some salient issues relevant to each field of home economics, including housing, families, children, food, clothes and education.

At the beginning, Dr Midori Otake, the Chair and co-ordinator, will explain the major intention of this symposium. Her major is family resource management and home economics education, and she is a leader of the lifestyle research project about the Great East Japan Earthquake in JSHE. Dr Michio Miyano, who is majoring in safety of housing and disaster prevention, will discuss damage to housing and human casualties. He is a leader of a research group at Osaka City University. Dr Yoko Ito will talk about some changes in children's lives soon after the disaster. Her major is child development and developmental psychology. Dr Kuniko Sugiyama, who is majoring in cookery science and food education, examines changes in people's dietary lives after the disaster. Prof Kei Sasai, who is majoring in clothing life and culture, presents the function and tradition of clothes after the disaster. Dr Noriko Arai whose special field is home economics curriculum research, will discuss what we should learn from disasters and how to reflect such experiences on home economics education, focusing on safe, sustainable and co-supportive living.



## Workshop

Room 103	<b>WS CSD Sustainable development and home economics: practical approaches and resources for the classroom</b>	
Chair	<b>Miriam O'Donoghue</b>	IFHE Program Committee
Presenters	<b>Miriam O'Donoghue</b> (CDVEC Curriculum Development Unit, Dublin, Ireland) <b>Amanda McCloat</b> (St Angela's College, Ireland)	

This workshop, hosted by the Consumers and Sustainability IFHE Program Committee, is aimed at teachers and lecturers who are interested in integrating sustainable development concepts and themes into home economics.

The workshop will comprise of three parts:

### Part 1

An introduction to a resource for teachers and lecturers entitled Education for Sustainable Development 'Images and Objects' Active Methodology Toolkit, published by the Consumer Citizenship Network (CCN). Workshop participants will both hear about and participate in a range of activities from the Toolkit, with a focus on the use of images to support teaching and learning of sustainable development themes and concepts.

### Part 2

A presentation of findings from an action research study on the adaptation of the Sustainable Development 'Images and Objects' Active Methodology Toolkit for the home economics curriculum with an opportunity to see the resulting toolkit.

### Part 3

The final section of the workshop will focus on two additional teaching/learning resources to support integrating sustainable development concepts and themes into home economics:

1. An ebook partnership project between the IFHE and the CDVEC Curriculum Development Unit, Dublin, Ireland, entitled 'Global Sustainable Development: a challenge for consumer citizens' ([www.educationforsustainabledevelopment.org](http://www.educationforsustainabledevelopment.org))
2. A project supported by the Partnership for Education and Research about Responsible Living (PERL) entitled 'LOLA' (Looking for Likely Alternatives). This is a resource which introduces students to the concept and examples of sustainable lifestyles.

## Concurrent sessions

Room 101	<b>TEX 3 Perspectives on the clothing industry</b>	
Chair	<b>Mi Young Son</b>	

89	<b>Prospects for the fit of ready-to-wear clothing</b>	
Lead author	<b>Kirsti Salo-Mattila</b> (University of Helsinki)	Finland

**Aim**

For the past twenty years, improvement in the fit of ready-to-wear clothing has been suggested through new ways of mass customisation enabled by advances in computer technology. This is yet to be realised. What are the prospects for the fit of ready-to-wear in the near future? The present study considers the possibility of fit satisfaction with an emphasis on young female adults.

**Method**

A mixed-methods approach was applied by combining qualitative and quantitative methods. The first part of the study considered fit in the fashion system on a theoretical basis, deriving from the semiotic analysis of Roland Barthes. The second part analysed quantitative data of how young female adults experienced different dimensions of ready-to-wear clothing. The informants in the latter part of the study were 162 first-year students in a textile teacher program at a Finnish university, from 2004 to 2010.

**Results**

The outcome of the qualitative part of the study was corroborated by practical evidence in literature. Arranging ease around the body according to fashion and personal preferences is a necessary condition for fit satisfaction. The quantitative part of the study found that only five percent of the respondents were satisfied with the dimensions of ready-to-wear garments and there was a general lack of correlation between their dimensional fit experiences. On the other hand, half of the respondents had experienced at least an approximate fit.

**Conclusion**

The results were viewed against the potential advances in body measurement, sizing systems, and manufacturing as discussed in literature. It was concluded that the chances of offering customers fit satisfaction with ready-to-wear clothing are low in view of the theoretical constraints present in the fashion system and technological constraints faced by mass customisation. Although custom fit was found necessary for fit satisfaction, a realistic goal for the industry would be to offer an approximate fit for a higher percentage of customers than today.

129	<b>Functional apparel for cosmetologists: A design development assessment of product function</b>	
Lead author	<b>Dorothy Thompson</b> (University of Uyo)	Nigeria
Co-author	<b>Priscilla Ezema</b> (Federal College of Education)	

The purpose of this study was to assess the functional attributes of apparel developed for cosmetologists in order to establish the acceptability of the product by potential consumers of small, medium and large size categories. The study was carried out in Lagos, Nigeria. The population comprised 3820 cosmetologists. Purposive sampling technique was employed to select 24 cosmetologists as study participants. The instrument used was the 23-item Functional Apparel Design Assessment Instrument for Cosmetologists (FADAC). The internal consistency of the instrument was established using Cronbach alpha coefficient. One research question and one hypothesis guided the study. The research question was answered using means and standard deviations while the null hypothesis was tested using Analysis of Variance (ANOVA) at .05 level of significance. The implementation of the findings of this study will facilitate large scale production of occupational apparel that will meet design and human factors within the cosmetology workforce.

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## Technical competencies for entry-level fashion design positions

Lead author

**Eunyoung Yang** (Meredith College)

United States

### Aim

If the educational system is to effectively prepare college or university graduates to fill job requirements in the 21st century, fashion curricula must change to reflect the dynamic needs of current fashion industries. Therefore, the identification of appropriate skills to attain entry-level design positions and to progress upward in career paths, from the view of both fashion industry professionals and fashion educators, will be critical to make accurate and timely curriculum decisions. This study examined and compared perception differences between fashion industry professionals and fashion educators regarding the necessary technical skills for a fashion design college graduate to acquire an entry-level design position in the fashion industry.

### Method

To measure the perceptions of importance, a 5-point Likert-type scale, ranging from 1 (Not at all important) to 5 (Extremely important), was used to rate 50 competency items under eight categories of technical skills. The categories included patternmaking techniques, sewing techniques, drawing techniques, design skills, computer skills, textile evaluation skills, product development skills, and promotional skills. Data was collected to determine the significance within and between two subject groups of fashion industry professionals and fashion educators. The total useable questionnaires completed were by 171 professionals with a 14.5% response rate and 219 educators with a 30% response rate.

### Findings

Findings of the study indicated that the participant group had a significant effect on overall technical skills importance ratings scores as educators had significantly higher scores ( $M = 4.02$ ) than industry professionals ( $M = 3.78$ ). Industry professionals rated importance of design skills the highest ( $M = 4.11$ ), followed by drawing skills, textile evaluation skills, sewing techniques, patternmaking techniques, product development skills, computer skills, and promotional skills. Educators ranked drawing skills the highest ( $M = 4.21$ ), followed by design skills, product development skills, patternmaking techniques, textile evaluation skills, computer skills, sewing techniques, and promotional skills. Findings revealed differences in the perceptions of industry members and educators regarding which competencies were important and the levels of importance assigned to each one. This study provides a summary of these differences.

### Conclusion

It is the goal and responsibility of fashion design programs and educators to produce graduates with the skills, competencies, and attributes needed to find employment and be viable in their career. Therefore, information obtained can be used by fashion educators in developing or modifying apparel design curriculum so that it is current with the industry and prepares students to meet industry skill demands.

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## Exploring opportunities for home economists' intervention in Recife's Art and Craft Flea Market

Lead author

**Margarida Demarchi** (Freelance educator)

Canada

### Aim

Recife is a city in the northeast coast of Brazil, with about 1.5 million people, high unemployment rate and income per capita among the lowest in the country. According to the Brazilian Institute of Geography and Statistics (IBGE), the unemployment rate in the Metropolitan Area of Recife was 16.2 per cent in 2010, while the national rate was 6.7 per cent. Recife earners make on average less than USD\$230 per month, which is less than the national minimal wage of USD\$315 (Recife Map of Economic Development). The purpose of this work is to explore an alternative to unemployment and low income in Recife's art and craft flea markets, as well as to identify opportunities for the participation of home economists in supporting these workers.

### Method

Two major touristic art and craft flea markets were visited, workers were interviewed and business cards were collected from a random sample of artisans for further information gathering via telephone interviews. Artisans were asked about their reasons to start their art and craft business, their other income sources, and whether or not they have taken credit to start or improve their businesses. They were given the chance to ask questions and make any comments they desired.

### Results

The majority of people selling arts and crafts in Recife's art and craft flea markets became artisans by necessity. They started their business as an alternative to unemployment and over time it became their source of income. On average the artisans make from USD\$870.00 to USD\$1450.00 net per month.

Some artisans have qualified for loans from government agencies at different times of their business evolution, while others never borrowed, although they needed the credit to expand, because they were afraid, not sure how to use it and/or skeptical of using credit. Most of the arts and crafts we observed at the flea market were made of recycled or reused material, or leftovers from other industries, especially textile products. Artisans commented on their need to constantly innovate their style and materials to differentiate from Chinese merchandise available in the local stores at lower prices.

### Conclusion

Although selling arts and crafts in the flea market provides an income above the average, it may be still uncertain and unstable. Artisans could benefit from education and advice on financial management, borrowing money, identifying textiles, and business development. Home economists projects tailored to the needs of this population is warranted.

Room  
102

## FAM 2 Balancing family roles and responsibilities

Chair **Judith Cornelissen**

246

## Life stories of single parents and their children in Japan and Korea

Lead author **Akiko Ueno** (Kinjo Gakuin University)

Japan

Co-author **Kyoung-Won Lee** (Okayama University)

### Aims

Most single parent families need not only financial support, but also other social supports. Personal notes and books have been written about their experience as single parent families, yet only little research has been done on this topic in Japan and Korea. Therefore, this research focused on their experience as single parent families. One purpose of this research was to interpret single parent family life stories from the parent perspective as well as the child perspective in the same household. Another purpose was to look into similarities and differences of their perspectives with the same life events. Another purpose was to gain insight into the implications on social support for their wellbeing.

### Methods

Life story research was conducted in Japan in March and April 2009 with the child of a single parent, and January and February 2010 with the mother. In Korea, the research was conducted in October 2009 with both child and parent. The children were university students. The meeting times and time spent varied depending on the participants. Individual participant and individual researcher met personally. The stories were recorded by IC recorders with the participants' permission. The transcripts of the conversations were approved by the participants and shared with the two researchers in order to interpret them according to the research purposes.

### Findings and conclusions

The collected life stories showed some similarities and differences between the parent perspective and the child perspective for both Japan and Korea. Some implications for necessary social support were drawn from the stories as conclusions. For example, the Japanese participant, Ms N, shared her life story as a child of a single parent - caused by her father's death. She had difficulty in accepting her father's death. According to her, she hated the heavy, dismal atmosphere in the family as well as the fact that her father was not there anymore. She accumulated stress gradually and became very depressed a year after her father's death. She said, 'I was very hysterical at home. I did not want to go to school. Nothing was fun. I was saying every day to my friends that I wanted to die'. Ms N's mother did not know what her daughter was going through. She noticed her daughter became rebellious, but rationalised such behaviour as a result of her young age. It implied that social support could have been offered for their wellbeing immediately after the loss of Ms N's father.

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### Stabilising everyday life in a family living on the edge of exclusion

Lead author	<b>Marja Saarilahti</b> (Helsinki University)	Belgium
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The first objective of my paper is to describe how everyday family life is experienced on the edge of exclusion. I will elaborate on some features that illustrate that everyday life in families is unstructured and unexpected things follow each other without somebody's control. The second objective is to present one positive method that aims to improve the wellbeing of so-called drifting families and their members. The method is based on timing and structuring daily family life so that children and parents can anticipate and prepare better for coming days and weeks, and even longer periods of time. As a theoretical frame of reference, I will use sociocultural concepts that take into account that every individual and family has dealings with many different systems. Learning and development of working methods are mostly considered from a point of view of expansive learning and co-configuration developed by Yrjö Engeström. The target groups in the study are families that have difficulties coping with everyday life. There is a lack of routine and rhythm in the families and this brings difficulties above all to children. These 'drifting families' may have little interaction outside home and relations are motivated by necessity and are often negative in content. The sequence method aims to empower family members so that they could discover their capacities and they would be able to seek help outside the home if needed. The data is collected in the context of a family work project by the Family Federation of Finland (Väestöliitto). The main purpose of this project was to develop concrete skills of daily life and household routines together with the families. This data consists of recorded discussions between family social workers and family members. It also contains transcripts of meetings where social and welfare authorities were present. There are also records from official meetings and notes of family workers. The data guides the analysing process and the analyses are based on conversations. The paper assesses the differences in perception of everyday life in families from the viewpoint of social workers, authorities, and family members, and draws attention to the discrepancies of the observations of 'outsiders' on the one hand, and of the experiences of the family members on the other hand. Those discrepancies could be avoided if all persons concerned would work together using co-configuration.

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### Why are Japanese mothers so sorry for people in public?

Lead author	<b>Natsuko Nakatani</b> (Osaka Prefecture University)	Japan
Co-author	<b>Misa Morita</b> (Kochi University)	

The purposes of this study are to find out whether Japanese people are annoyed with children and mothers in public areas, and to clarify the relationship between this and Japan's low birth rate. It is often said that Japanese people are polite and well-mannered. It is honorable that they have such characteristics. However, that kind of manners and politeness in public may force parents with children to feel sorry for other people. Therefore, we believe that situation may be one of the factors causing Japan's low birth rate. We have been conducting investigations since 2009 in Japan. We conducted semi-structured interviews. Our main findings are:

1. Many people are annoyed with children in public. For example, they are irritated when crying babies, noisy children, and strollers are near them in trains and buses. People who have children and those who don't feel the same. Japanese mothers are very nervous when they go out in public places. Some of them stop going out and others have been asked to go away by a person next to them.
2. Some companies are practising gender-equal and work-life balance policies. They have banned overtime and they are implementing childcare-friendly working conditions. The number of working mothers has been increasing in recent years. However, working mothers feel so guilty for being late or absent when their children are sick. Some of them feel sorry for their co-workers and bosses.
3. However, some mothers find these situations are not fair and they are changing the public consciousness. They do not want to take too much responsibility as mothers.

Although more surveys are needed, Japan's strategy should acknowledge that the key to solving population problems relies on the concept of annoyance.

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### Good father's way! Qualitative research on father-daughter dyadic design in Taiwan

Lead author

**Hsiuchen Wei** (National Taiwan Normal University)

Taiwan

#### Aim

This is an exploratory and descriptive study of the perception of 'good fathers'. With the increased focus on promoting good fathering in Taiwan, it is important to identify what 'good father' means from a child's point of view. A lot of research indicates that high quality fathering is related with family wellbeing. Unfortunately, some reports do not include information on being a good father in our society. The focus of this research is adult children's perceptions about good father behaviours, based on their interactive experience with their father. In this dyadic research, I also studied 'good father' perspectives from these subjects' fathers. With information from both generations, we can find some rules or principles to fit the concept of 'good father' in Taiwan.

#### Method

Two approaches were used in this study to gather data. First, I asked university students who recommended their father as qualifying as a 'good father' to join this research. Then four fathers (recommended by four female students) also participated in this study. I used personal in-depth interviews to get perspectives regarding 'good father' from four fathers. A focus group interview was used to gather four students' perception about 'good father', related to their own father's performance. Participants agreed to audio-taped records of the whole interview process. Narrative analysis principles were used to interpret and analyse the data.

#### Results

A good father has diverse characteristics admired by his children including humour, conversational, brave, and full-filled with wisdom. Adult children appreciate their father accompanying them. These fathers are enthusiastic about their children's life and will attend a lot of activities during children's different development stages. Good fathers earn their children's trust because of helping their children with thinking or decision-making. Children have confidence in their fathers when their father can help them to search for information and guide them successfully to make decisions.

#### Conclusion

These study findings indicated 'good father' in the view of adult Taiwanese children is close in meaning to 'responsible father': high interaction with and involvement in their children's lives.

Room  
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### EDU 06 Educational strategies for building capacities

Chair

**Chrissy Collins**

41

### Observation and perception of school authorities regarding the role of school personnel in home-school partnership (parent involvement)

Lead author

**Kamini Rege** (College of Home Science, Nirmala Niketan)

India

Co-author

**Nirmala Almeida** (College of Home Science, Nirmala Niketan)

Home-school partnership (parent involvement) becomes a reality when the school authorities (principal, supervisors and teachers), strive to enter into effective partnerships with parents to strengthen their participation in the school community for the students. Although the benefits of home-school partnership have been spelt out, observation clearly indicates that the level of the same, in the Indian context, is minimal. Thus, the objective of the study was to ascertain the perception of supervisors and teachers regarding the role of school personnel in home-school partnership. The sample consisted of 20 supervisors (10 preschool, 10 primary school) and 60 teachers (30 preschool, 30 primary) from 10 schools located in Mumbai. In-depth interview, consisting of 76 items (open and closed-ended) was conducted to elicit the desired information on six aspects of home-school partnership. These aspects were parenting, communicating, volunteering, learning at home, decision-making and collaborating with the community. The results

revealed that supervisors assumed responsibilities such as providing information to parents about the school and childrearing aspects and involving them in school volunteering. Asking parents for child and family-related information, communicating with parents and sending student's work home, were responsibilities of the class teacher. The principal was accountable for organising input sessions for teachers and for encouraging parents to join the PTA. The findings of this study can serve as the basis for formulating policies that will encourage all stakeholders (school authorities, teachers, parents and the community) to get actively involved in home-school partnership.

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### Girl-youth empowerment through cultural change

Lead author	<b>Farhana Nosheen</b> (GC University Faisalabad)	Pakistan
Co-author	<b>Faiza Tasneem</b> (GC University Faisalabad Pakistan)	

The purpose of the study is to analyse the behaviours and attitudes of adult family members regarding patriarchal trends of society for girl-youth empowerment. This study is a unique contribution to the literature as it mainly focuses on empowerment issues of today's girl-youth and seeks those socio-cultural factors which effect the girl-youth empowerment. For this purpose, a total of 93 girls studying in the university at graduation level were selected as sample using a random sampling technique. The main findings of the study indicate that 53.3% of respondents think that girls are usually fed after boys because of old family norms. The majority (76.1%) of respondents have no freedom of voice because of old family traditions. About 47.8% of respondents report that girls do not have permission to choose their favourite subjects for higher studies because of the costs of education. About 47.8% respondents think that girls are disempowered because of an over-dependence on males. Almost 74% of respondents strongly agree that empowerment encourages girl-youth to become involved in decision-related activities pertaining to their lives. About 62.8% of respondents strongly agree that empowered girls can lift themselves out of illiteracy, poverty, disease and death. Some recommendations that have been put forward include: improved skills-training and education for girls as well as the promotion of equality between male and female children within families' culture and life styles and the establishment of female educational institutions and all-women work places to help ensure more sustainable human development.

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### Validated assessment tasks in nutrition and health education: Making it easier to gather evidence of student progress and inform teachers' planning, teaching and reporting

Lead author	<b>Sharon Foster</b> (Department of Education and early Childhood Development)	Australia
Co-author	<b>Nerida Matthews</b> (Victorian Curriculum and Assessment Authority)	

This session will outline the Sample Assessment Project (SAP) which involved a statewide random sample of Australian government school students in the state of Victoria in years 4, 8 and 10 in 2010. The sample has provided the first statewide system performance data in nutrition and health education and the validation of tasks. The participants will be provided with an overview of the SAP methodology and validation process. The session will explore the assessment tasks, how students performed and teacher feedback. Participants will reflect on the current challenges in formative and summative assessment, explore the potential use of these validated assessment tasks and the implications of these findings for the development of the new Australian Curriculum.

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### Developing industrial relationships through innovations in home economics education: A case study of Federal College of Education, Eha-Amufu, Nigeria

Lead author **Ruth Ukamaka Ossai** (Federal College of Education)

Nigeria

This study investigated the development of industrial relationships through innovations in NCE Home Economics Education so as to improve the skills acquisition of home economics students. The aim of the study was to find out those courses in NCE Home Economics at levels 1, 2, and 3 which can be effectively taught by home economics lecturers and industrialists. Survey design was used, with three research questions guiding the study. The area of the study was Federal College of Education, Eha-amufu, Enugu State, Nigeria. The population for the study was nine NCE home economics lecturers and forty third-year students who have completed their industrial work experience. Questionnaire was used for data collection. The data collected were analysed using mean. Findings show fourteen courses that can be taught by home economics lecturers and industrialists and that a positive relationship exists between what students learn at school and actual work experience.

Room  
105

### EDU 07 Teacher attitude and competence: influences on curriculum

Chair **Gerda Casimir**

145

### Predictors of the importance of food skills amongst home economics teachers

Lead author **Sandra Fordyce-Voorham** (University of Wollongong/Mentone Girls' Grammar School)

Australia

#### Aim

The aim of this study was to investigate relationships between demographic characteristics and life orientations of home economics teachers as predictors of the importance of the essential food skills that ought to be taught to students in secondary schools in Victoria, Australia.

#### Method

A survey was conducted among home economics teachers (n = 271) teaching in Victorian secondary schools and who were members of a professional teacher association. Alongside questions on age, length of teaching experience, professional background, location and type of school, teachers were asked to respond to a series of statements relating to their opinions on food and nutrition, environment and consumerism. It was proposed that teachers' beliefs based about these areas would influence their perceptions of the importance of several sets of food skills in the classroom curriculum. Responses to the beliefs questions were categorised as 'life orientations' and tested by statistical analyses using a process of factor analysis. Factor analysis was used to simplify data and derive common themes between the food skills items and the life orientations of the teacher respondents.

#### Results

Three life orientations were derived from this process: the 'food aesthete', the 'consumer-environmentalist' and the 'nutritionist'. Similarly, five food skills factors were also derived: procedures for domestic settings (factor 1), procedures for vocational settings (factor 2), cookery methods (factor 3), food economy (factor 4), using microwave ovens (factor 5). Multiple regression analyses showed that the age of the respondents and their professional background and food skills experience were minor predictors of the perceived importance of food skills; however, the three 'life orientations' were stronger predictors. Specifically 'food aesthetes' valued factors 1, 2 and 3; 'consumer-environmentalists' valued factors 1, 2, 4 and 5 and 'nutritionists' valued factors 2, 4 and 5.

#### Conclusion

The personal beliefs of home economics teachers appeared to be better predictors of the importance they attach to the teaching of particular food skills than demographic characteristics such as age, professional background and teaching experience. These results raise questions about the training and professional preparation of home economics teachers.



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### New Nordic Food: a comparative study on teacher competence in Nordic countries

Lead author **Inger Lise Fevang Jensen** (Vestfold University College, Norway)

Co-authors **Anna-Lise Stroejer\*** (Metropolitan University College, Denmark)  
**Anna Sigridur Olafsdottir** (University of Iceland, Iceland)  
**Hanna Sepp** (Hogskolan Kristianstad, Sweden)  
**Lilja Palovara Soeberg** (Hogskolen i Hedemark, Finland)  
 \*co-presenter

#### Aim

The aim of our report is to suggest and develop professional follow-up studies in all the Nordic countries, where content and themes connected to 'New Nordic Food' is a central issue. The report can be defined within the four themes for the Congress: global wellbeing, creativity and innovation, developing capacities and sustainable futures. The guidelines for New Nordic Food point out:

- the importance of food identity in every region and country
- that the raw materials for all meals in the Nordic countries are produced according to sustainable principles
- that the food and meals are inspired by traditional Nordic food culture and created out of new conditions and have an innovative approach
- that the food and meals are developed through interaction with the cultural sector.

Through these aims New Nordic Food has become a movement, and it is important that the educational system becomes a part of this.

#### Method

The project group studied the national policy documents for home economics in the five Nordic countries, in primary and secondary school, and in higher and advanced education. We used statistics of teachers competences and compared the situation in the Nordic countries.

#### Results

We found that the national policy documents for home economics in the Nordic countries make it possible to add themes from New Nordic Diet, in the educational system mentioned above. The report shows that Finland has satisfying teacher competence, while the other Nordic have less than 50 per cent of the teachers with the subject in their education. There is an academic consensus that the teachers' expertise is crucial to students' learning benefit. Thus, the students' learning benefit becomes worse than it should be. This has extended effects in many areas. We point out that there is a need to collect, systemize and develop teaching materials to the themes of New Nordic Diet. Many relevant technical topics have been developed, and with efficient use they will contribute to greater learning benefits for pupils and students.

#### Conclusion

The project group recommend an increase in the competence of teachers by developing an online supplementary education course. The course will be open for teachers with and without home economics in their portfolio of subjects. Target groups are teachers who need to raise their skills and get inspiration by incorporating the theme, New Nordic Diet, in their teaching, and new teachers who want more knowledge. Further information: [www.norden.org/no/publikasjoner/publikasjoner/2011-719](http://www.norden.org/no/publikasjoner/publikasjoner/2011-719).

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### Home economics student teachers' perceptions on inter-subject collaboration during teaching practice

Lead author **Silpa Pontinen** (University of Helsinki)

Finland

Home economics (HE) as a school subject has the potential for inter-subject collaboration. It has connections to, for example, chemistry, physics and biology, as well as history and social sciences. A qualified HE teacher should not only master his/her subject matter but also be able to collaborate and have good interpersonal skills in order to facilitate pupils' comprehensive thinking and learning. A teacher should be aware not only of the curriculum in his/her own subject but of those in other subjects as well. This paper is a part of my dissertation project: its main aim is to find out how inter-subject collaboration can be enhanced during HE teacher education. I am interested in learning what the

opportunities, challenges and requirements of successful collaboration between teachers and teacher-training students of different subjects are. One aspect of this is how the potential for inter-subject collaboration in home economics is transferred to student teachers during teaching practice. This was a focus of the first phase of my research study in which the perceptions of HE student teachers were investigated. The study was carried out in the University of Helsinki. Data was obtained from focus group interviews and video-recorded planning meetings. This paper introduces the results of nine focus group interviews, which were conducted at the same time as the reflective discussions were held after the field-school practice. Nineteen students and one university lecturer participated in the discussions. The interviews were transcribed (total 133 pages) and then analysed qualitatively. Based on the content of interviews and themes outlined beforehand, four main categories were identified: 1) collaboration in practice, 2) potential benefits of network-based collaboration, 3) obstacles, requirements and opportunities, and 4) the culture of collaboration. The main finding was that the inter-subject collaboration took place mostly through discussion or was implemented during HE lessons without involving the consultation of colleagues in other subjects. After this first phase it was concluded that actual inter-subject collaboration in the field schools was difficult for HE teacher students as only a few student teachers of other subjects were present at the same time in the field schools. Therefore the next phase was implemented in university training schools where student teachers of almost all subjects are represented in the same teaching practice and where tutors are prepared to support student teachers.

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### Student teachers' personal and professional development in relation to teaching and delivering lessons in personal development education

Lead author	<b>Dorothy Black</b> (University of Ulster)	United Kingdom
Co-author	<b>Lisa Meneely</b> (Victoria College Belfast)	

This case study explores the attitudes of student teachers to delivering personal development lessons in post-primary schools as part of the revised Northern Ireland core curriculum. In a society emerging from three decades of conflict and where there are higher levels of social disadvantage than in the rest of the UK (The Northern Ireland Suicide Prevention Strategy and Action Plan 2006–2011 DHSSPS) there is a growing awareness that schools have a key role in promoting positive mental health and addressing issues of emotional wellbeing. From looking at student teacher attitudes in general this paper goes on to highlight in detail the experiences and learning from implementing a specific school-based initiative on developing emotional health and wellbeing in a particular year group. A range of approaches were used to collect data, including questionnaires, focus group interviews with pupils, student teachers and teachers and lesson observations. The findings indicate the importance of student teachers developing understanding and skills to deal with affective, personal and professional dimensions of their role as teachers. Also that pupils can benefit from direct teaching on topics related to feelings, mental health and wellbeing where there are opportunities to express their opinions and explore emotions in a non-judgemental setting. From a whole-school perspective the project raised the profile of pastoral support systems within the school and the obligations this in turn places upon teachers and senior managers to give attention not just to academic achievement but also emotional health and wellbeing.

Room 107	<b>HEA 3 Protecting the health of rural populations: Perspectives from two continents</b>
Chair	<b>Susanne Hofer</b>

300

### Factors associated with the consumption of selected vitamin A-rich foods in Ido local government area, Oyo State, Nigeria

Lead author	<b>Mojisola Fauziyah Oyewole</b> (University of Ibadan, Nigeria)	Nigeria
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The study investigated factors associated with the inadequate consumption of selected vitamin A-rich foods in the Ido local government area of Oyo State. Population for the study includes all heads of randomly selected households within the selected villages in this local government area. An interview schedule was used to elicit information from 140 respondents on: their sociocultural and economic situation that may influence the consumption of selected vitamin A-rich foods; the health factors that affect the consumption of selected vitamin A-rich foods; and strategies in the

production of vitamin A-rich foods in the study area. Descriptive statistics were used to summarise the data while Chi-square and correlation were used to test the hypotheses. The study population was dominated by farmers (61.43%). Respondents consume eggs most among the animal sources of vitamin A, while they consume leafy vegetables, pepper and palm oil more than other plant sources, implying there is no cultural barrier against the consumption of vitamin A-rich foods. The cost of the sources is the greatest factor mitigating against vitamin A food consumption. A significant relationship existed between respondents' health situations and consumption of vitamin A-rich food ( $r = 0.80$ ,  $p < 0.05$ ). Sources of income, household size and contact with extension agents influence respondents' consumption of vitamin A-rich food sources among others while respondents' occupation had no influence on their consumption pattern. The study concludes that respondents are not well educated in the importance of preventive health care.

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### Ecosystem changes on human livelihoods: Implications of climate variation on rural dwellers' food availability and consumption patterns in Nigeria

Lead author	<b>Nkiru Meludu</b> (University of Ibadan)	Nigeria
Co-author	<b>Beatric Adedokun</b>	

Climate variations have led to poor harvests due to extreme weather events such as strong winds, floods, extreme heat and drought. These events have devastated farmland and consequently led to crop failure or poor yield as an emerging point for hunger, food and nutrition insecurity. The focus of this research study was to determine the effect of climate variation on rural dwellers' food consumption patterns. The study found out that ecosystems have changed in terms of services and uses, with serious effects on wellbeing, poverty and livelihoods. However, the mean score of the effect of climate variation is (99.71), and the majority (52%) of the respondents rated the effect high. The study found that there was a significant relationship between effect of climate variation and the pattern of protein consumption ( $r = 0.052$ ,  $P = 0.001$ , vitamins/mineral ( $r = 0.05$ ,  $P = 0.005$ ) and carbohydrate ( $r = 0.989$ ,  $P = 0.001$ ). The t-test result showed that there was a significant difference between the food consumption patterns of rural dwellers before and after 2000 in the consumption of carbohydrate ( $t = 2.86$ ,  $p = 0.005$ ), protein ( $t = 3.24$ ,  $p = 0.001$ ), vitamins/minerals ( $t = 3.31$ ,  $p = 0.001$ ). Also, there was a significant relationship between the coping strategies and consumption of protein ( $r = 0.16$ ,  $P = 0.005$ ), vitamin and mineral ( $r = 0.16$ ,  $P = 0.005$ ). In conclusion, building the capacities of rural dwellers for adaptation to climate and socioeconomic changes is paramount.

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### Improving the health and wellbeing of at-risk farmers: The 'Farming Fit' study

Lead author	<b>Susan Brumby</b> (National Centre for Farmer Health)	Australia
Co-authors	<b>Cate Mercer-Grant</b> (National Centre for Farmer Health) <b>Ananda Chandrasekara</b> (National Centre for Farmer Health)	

Depression affects 1 in 5 Australians and is the leading burden of non-fatal disease in Victoria. Rural Australians face an even higher mental health burden due to social isolation, socio-economic constraints, poor diet, increased alcohol intake, sub-optimal sleep, lack of exercise, higher rates of obesity and diabetes. These stress indicators are further exacerbated by environmental challenges including prolonged drought, flood and bushfires. National Centre for Farmer Health (NCFH) research shows that many farm families have poor physical health, are socially isolated in addition to being impacted by climate variability.

#### Methods

For this study, farming participants with a Body Mass Index  $\geq 25$  (kg/m<sup>2</sup>) were recruited from Sustainable Farm Families (SFF) programs conducted since February 2010. Participants were measured for markers of physical and mental health. Biochemical analysis of cholesterol, glucose and cortisol levels were taken. Diet and physical activity data was collected using self-reported questionnaires. Baseline data was later matched to data collected six months later following the 'Farming Fit' study. Half the participants received no exercise program over the six-month period while the intervention group undertook an exercise program and regular phone coaching in order to increase physical activity.

#### Results

Statistically significant reductions were detected only within the group that undertook the physical exercise program and not within the control group. The 'Farming Fit' intervention resulted in significant reductions in body weight compared with the control group ( $p < 0.001$ ), Body Mass Index ( $p < 0.001$ ) and waist circumference ( $p = 0.05$ ). Importantly, improvements were also detected in cholesterol levels ( $p < 0.05$ ) and blood pressure ( $p < 0.05$ ). Among the intervention

group, positive changes were observed on health markers including reduction of serum cortisol (409.5nmol/L to 373.7nmol/L), mental wellbeing (Depression Anxiety Stress Score average reduced from 17.5 to 16.5) and increased physical activity output. These changes trended to improvement within the intervention group, however, were not statistically significant. Finally, farmers reported that they did not know how to undertake structured physical exercises and this resulted in a DVD being produced by farmers.

### Conclusion

This study was aimed at high-risk farming men and women. It was pleasing that a highly targeted intervention had positive physical and mental health outcomes within this cohort. Further research and rollout of positive interventions like 'Farming Fit' will help improve the health of our rural and remote communities and reduce the current gap in physical and mental wellbeing experienced outside of urban areas.

689	<b>Sustainable farm families</b>	
Lead author	<b>Cate Mercer-Grant</b> (National Centre for Farmer Health): congress presentation by co-author <b>Susan Brumby</b>	Australia
Co-authors	<b>Susan Brumby</b> (National Centre for Farmer Health) <b>Adrian Calvano</b> (National Centre for Farmer Health) <b>Ananda Chandrasekara</b> (National Centre for Farmer Health)	

Australian farming families contribute a significant portion of Australia's rural population and productivity, with agriculture and its closely related sectors earning \$155 billion per year for a 12 per cent share of the GDP. Australian farmers and graziers own 135,996 farms, covering 61 per cent of Australia's land mass. Major issues facing the industry include climate variability, soil fertility, tariffs, bio-security and profitability. But what do we know about the health of this important industry? The National Centre for Farmer Health (NCFH) is a partnership between Western District Health Service and Deakin University. The NCFH developed and delivers the Sustainable Farm Families (SFF) program Australia-wide. We have been able to link government, universities, and agriculture and health services together to research and understand the health status and needs of farm men and women and their families. Sustainable Farm Families is an innovative health promotion program that addresses the health, wellbeing and safety of families. The program addresses health in the context of farming and as a value-adding asset within the family business. Program delivery uses sound theoretical frameworks enabling comprehension of health and wellbeing topics within the farming business.

### Methods

The Sustainable Farm Families program follows farm men and women over three years across rural and remote Australia. The program provides physical assessments, review of health conditions, assessment of health behaviours, focus groups and education relating to common health conditions. Participants are referred to health professionals as required and reassessed annually over the three years.

### Results

Outcomes from the program reveal that delivering targeted health awareness and education programs to farm men and women and their families leads to a statistically significant improvement across a broad range of key health indicators. Education and increased knowledge also provides farming families with tools to promote positive change in relation to physical health, mental wellbeing and safety risk reduction.

### Conclusion

Key learnings from the program highlight that the agricultural industry is a unique and motivated industry that experiences sub-optimal health care, high rates of lifestyle related illness, high rates of work-related injury and consequently poor morbidity and mortality outcomes. Farmers with significant risk for diseases responded well to the Sustainable Farm Families program with statistically significant changes observed in health indicators over the three years of intervention.

Room  
110**FDN 2 Influences on food choice**Chair **Susan Bailey**

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**Creative research methods: Becoming an agent for change**

Lead author	<b>Deirdre Kroone</b> (University of KwaZulu-Natal)	South Africa
Co-author	<b>Busisiwe Alant</b> (University of KwaZulu-Natal)	

**Aim**

This paper focuses on the innovative methodology used in an empirical study conducted in a South African high school in 2010. The aim of our research was to deepen our understanding of the phenomena of teenage food choice. By so doing, we hoped to find a means of engaging teenage learners in making food choices that could reduce the risk of diabetes later in life.

**Method**

A methodology of Participatory Action Research (PAR) was used in this research. PAR is based on critical theory, and is aimed at revealing social exploitation so that the participants can be empowered to make the changes necessary for their own, and each others' wellbeing (Maree 2007; McNiff 2002). The data was collected on two levels. During level one, the focus group conducted interviews and collected data from their peers throughout the school. During level two, data was collected by means of filming and recording six weekly sessions with the focus group itself. This paper will focus on the creative methods used to capture data during the weekly focus group sessions (level two).

**Results**

These creative research methods allowed for a deeper understanding of teenage food choice than focus group interviews alone. There was a very clear difference between the teenagers knowing about healthy food choices and actually making healthy food choices. An innovative trilogy of theories is used to analyse and explain why this may be so.

**Conclusion**

The findings can be used: to improve the practice of home economics, technology and science educators; to inform health practitioners and manufacturers of food products; to empower teenagers when making food choices; to advocate for global policy on marketing nutritionally sustainable food and beverage options to teenagers.

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**Australians' cooking skills – in a state of transition?**

Lead author	<b>Tony Worsley</b> (Deakin University)	Australia
Co-authors	<b>Sinem Ismail</b> (Deakin University) <b>Wei Wang</b> (Deakin University)	

**Aim**

It has been proposed that as the nutrition transition has disseminated through society, so cooking skills may be undergoing change and resurgence (Lang and Caraher 2001), more advantaged social groups being among the earliest adopters of novel culinary practices. As in other western countries, relatively little is known about the general population's cooking practices, skills and confidence. Therefore, the aim of this study was assess the cooking practices, skills and knowledge of a representative sample of the Australian adult population in order to identify differences among social groups and opportunities for culinary education.

**Methods**

A search of the cooking literature was conducted followed by a consultations with expert cooks to identify basic knowledge and skills required for the preparation of a variety of healthy main meals in the home. They identified various ingredients, equipment, and cooking, storage, safety and preparation techniques. These insights informed the construction of a cooking knowledge and skills questionnaire which was administered to a representative sample of Australians (n = 1000) via an online survey.

### Results

The findings indicate the types of meal preparation skills and kitchen equipment and food ingredients available in households within different socioeconomic categories. They show that home food preparers vary in their confidence, their ability to produce healthy evening meals and in the equipment and ingredients they bring to cooking. Gender and socioeconomic position are predictive of cooking skills and confidence. The results suggest possible foci for education programs which aim to increase the level of cooking skills in the population. The findings provide partial support for the transition theory proposed by Lang and Caraher (2001).

### Conclusion

Considerable opportunities exist to raise the cooking skills and knowledge of the general population; improvement of cooking skills is likely to be popular with large numbers of people and may be one practical way in which to address barriers to healthy eating.

Reference: Lang, T & Caraher M 2001, Is there a culinary skills transition? Data and debate from the UK about changes in cooking culture, *Journal of the HEIA*, 8 (2), 2–14

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## Children's influence on family decision making process in food buying and consumption: An empirical study of children's influence in Jakarta, Indonesia

Lead author	<b>Hanny Suwandinata</b> (Justus Liebig University)	Germany
Co-authors	<b>Ingrid-Ute Leonhaeuser</b> (Justus Liebig University)	

### Aim

The aim of the study is to analyse the behaviour of children in Jakarta, Indonesia, from different socioeconomic status (SES) and socio demographic status (SDS) in terms of their participation and influence in the family decision-making process during food buying and consumption. Furthermore, the perception and the behaviour of the parents and children will be compared to see whether children overestimate their influence or whether parents underestimate their children's influence on the family decision-making process or not.

### Method

The study is based on a mixed-methods empirical design, combining quantitative and qualitative techniques. The quantitative part includes standardised questionnaires and the qualitative part utilises an ethnographic study in terms of direct observation and semi-structured interviewing. Questionnaires were fulfilled by 300 participants (150 children aged 6 to 9 years and 150 parents aged 20 to more than 50 years). Seventeen families participate in the qualitative part of the study.

### Findings

The results signify that the majority of parents and children think that children can or have influence on the family decision-making process. Parents think that their children can influence them, but they perceive their children only as the influent, meaning that the parents often decide for them. On the other hand, children describe themselves as the co-decision maker, means that the decision is 50% decided by parents and 50% decided by children. In this case, children are overestimating their own influence, while parents underestimate children's influence. The family SES and SDS play a role in determining the children's influence in the family, especially age and gender of the children. Nevertheless, household income, education background and occupation of the parents, parenthood, family size, and language ability of the children have modest effects on determining the children's influence and responsibility in the family.

### Conclusion

Daily routines made up an important factor in how food activities were practised and how participation in and influence on food activities were distributed among family members. Children's participation in and influence on the family food were bound by the opportunities and constraints of their familial practices and their individual preferences. In families, mothers are usually in charge of organising food buying and consumption process. Children participate in and help with decision-making regarding ideas, general food choices for meals, and decisions that are more practical. Parents are still the major influence on the food choices of their children.

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### Food literacy: A possible mechanism for future proofing diet quality

Lead author	<b>Helen Vidgen</b> (Queensland University of Technology)	Australia
Co-author	<b>Danielle Gallegos</b> (Queensland University of Technology)	

There have been significant changes in the food we eat and how we view food and eating. There is debate about the causes and effects of these changes; however, there is no doubt that some have a relationship with the increase in diet-related disease, most notably overweight and obesity. 'Food literacy' is an emerging term used to collectively describe the relative ability to basically understand the nature of food and how it is important to you and how able you are to gain information about food, process it, analyse it and act upon it. It is thought that food literacy may be important in maintaining and enhancing diet quality in a changing food environment. Two qualitative studies were conducted to explore what food literacy is, what its components are and how it relates to nutrition. The first was a Delphi study of 43 Australian food experts from diverse sectors and settings. The three-round Delphi study began with a semi-structured telephone interview and was followed by two online surveys. Grounded theory was used to develop a conceptual model of the relationship between food literacy and nutrition. The model was then tested and refined following a phenomenological study of consumers using the example of 16–25-year-olds who were responsible for feeding themselves. This second study particularly examined the relationship between disadvantage and food literacy. It is proposed that food literacy influences nutrition through three related mechanisms of security, choice and pleasure. These mechanisms will be mediated by the local food supply and individual values. The relative importance of components of food literacy will depend upon these mediators. The level of nutrition outcome being sought (e.g. dietary guidelines versus food group serves) will also influence the relative importance of these components. This model is useful in guiding investment, practice and evaluation. It is also useful in describing the potential role of diverse sectors in enhancing food literacy to cultivate a more empowered food consumer who is resilient and adaptive to changes in the food environment.

Room  
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### HTS 2 Best practice in food preservation and laundry

Chair	<b>Rainer Stamminger</b>
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### Food preservation in the cold chain

Lead author	<b>Jasmin Geppert</b> (University of Bonn)	Germany
Co-author	<b>Rainer Stamminger</b> (University of Bonn)	

According to the World Health Organisation (WHO), foodborne illnesses are a widespread and growing public health problem in the contemporary world. It does not only concern developing but also developed countries. According to estimations, 30 per cent of the population in industrialised countries suffers from foodborne diseases each year. Food prepared at home is often responsible for outbreaks. However, there are many different possibilities in private homes to ensure food safety and to prevent food from premature spoilage e.g. drying, smoking, refrigeration, freezing, adding salt or sugar, heat processing and canning. Among these aforementioned methods, refrigeration takes a special position. No other processing technology is able to extend shelf life and, at the same time, maintain the initial physical, nutritional, chemical and sensory properties of food products to the same extent as refrigeration. On the other hand, refrigeration processes are very energy-intensive. Thus refrigerators contribute significantly to the greenhouse gas emissions and also to the total electricity consumption of a household, which are their major disadvantages. The energy consumption, however, can be influenced by the consumer through the purchase of an energy-efficient appliance and especially through an efficient use. This leads to the assumption that recommendations for sustainable refrigeration should not only refer to food safety and quality, but also consider energy savings and reduction of emissions. So, scientific studies and frequently published best practices in refrigeration will be analysed and assessed concerning their potential to meet these requirements.

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**Best practice in hand laundering**

Lead author

**Hester Steyn** (University of the Free State)

South Africa

Home laundering is an activity regularly performed in most households throughout the world. Technological developments offer sophisticated home laundry machines to clean up heavily soiled overalls in one load and refresh the most delicate fabrics in another. However, hand laundering is still daily practice in many households throughout the world. This occurs in households where electricity is not available in remote or less developed areas but also often in the best equipped homes merely because a single item needs to be washed separately. Laundering requires water and energy and the use of a detergent, all issues of concern in the aim for environment friendly and sustainable household practices. In rural areas women often have to carry water to their homes for the laundry process and wash every piece of their family's laundry by hand. Best practices in home laundering to save water and energy and still get the laundry done are of utmost importance to them. Best practice in hand laundering involves the following steps: sort the washing in groups of light colours and dark colours; sort these groups into slightly soiled and heavily soiled items; check items for stains and pre-treat stains; prepare basin with just enough warm water to submerge the laundry; start with least soiled items; dissolve the correct amount of detergent properly in the water before adding the laundry; stained and heavily soiled items can be pre-soaked; if a pre-soak is not used pre-treat heavily soiled areas by applying soap or detergent directly on the wet item and rub or brush it to remove the soil; wash with a kneading action rather than rubbing; remove from the wash water, squeeze out put in the rinse water; allow items to move freely in the rinse bath; prepare final rinse bath, bucket or bowl; remove from first rinse bath, squeeze out and put in final rinse bath; squeeze out excess water; turn inside out and hang on a clean smooth clothesline in a draught; remove from the clothesline as soon as the items are dry; fold or hang and iron if necessary and store in a clean dry place.

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**Developing best practices in food preservation: Drying and canning**

Lead author

**Sonia Van Zyl** (University of the Free State)

South Africa

Co-author

**Carina Bothma** (University of the Free State)

The purpose of food preservation is to conserve food for future use and has been practised for thousands of years. In early historic times, people learned to dry their supplies of fresh produce and to store food for the cold winter months. Later they discovered how to salt these products to extend the time that the foods remained edible (Bennion 1995). Much of the processing and initial treatment for the preservation of foods in developed countries is done by the food industry. However, there are still many places in the world, particularly in rural areas and smaller towns, where home gardens are popular and the excess produce is canned or dried for future use. There is, nowadays, a growing tendency for even city dwellers to keep a vegetable garden to produce their own organic produce (Food Gardens Foundation 2011). Drying is one of the simplest and most natural methods of preservation. Even fruit or vegetables that are not suitable for commercial purposes or produce that has been slightly damaged by insects can be dried with success. The household food manager can, with little effort, put away a good supply of dried fruit and vegetables for when no fresh products are obtainable. Nicolas Appert sold the first preserved foods in glass bottles with corks in 1809 (Bennion 1995). Some people still can or bottle foods at home for various reasons, including palatability, economy and the satisfaction derived from do-it-yourself projects. This presentation will provide information about the best practices in domestic drying and canning of, especially, vegetables, practices that ensure sustainable food sources in the home.



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**Best practice in automatic laundry washing**

Lead author

**Emir Lasic** (University of Bonn)

Germany

Laundry washing is one of the oldest domestic activities with the main task to provide hygienically clean laundry and to preserve its value. Today, this process is in most industrialised countries and emerging economies done by using an automatic washing machine. At present there are roughly 590,000,000 washing machines in 38 countries with about 2.3 billion people, which is about one third of the world population (Pakula and Stamminger 2009). Life cycle analyses estimate that for a typical clothing item, such as a t-shirt, approximately 60% of the carbon associated with the life cycle of the product will be emitted after the clothing is purchased by consumers (Allwood et al 2006). For washing purposes a large amount of water and energy is being consumed. For example, in Germany alone, for washing purposes about 6 billion kWh and circa 330 million of cubic metres of water is being used for washing purposes (Forum Waschen 2011). So, there is a large resource-saving potential in the field of domestic laundry washing. This can be achieved on the washing machine and detergent producers' side by, for example, improving the washing machine design, introducing new textiles treatment or introducing low temperature washing detergents. However, also on the consumer's side, there is some potential to contribute to lower the resource use for washing purposes. For example, it can be achieved by optimising consumers' washing habits. For this purpose numerous governmental and non-governmental as well as commercial organisations have issued best-practice lists for automatic laundry washing. However, best practices target only some smaller groups (such as specific countries, regions or groups with specific washing technology). This work collects and compares the present worldwide communicated best practices with a goal of creating a worldwide useable best practice that considers existing cultural differences, different traditions in laundry treatment as well as differences in technical design of automatic washing machines.

## Symposium

Room 106	<b>SYMFAM 4 Rhythms and practices in everyday life of families in transition PART 1</b>
Chair	<b>Korvela Pirjo</b>

## Introduction to Part 1 and Part 2

Presenter	<b>Pirjo Korvela</b> (University of Helsinki)
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## Daily rhythm in transition to parenthood

Presenter	<b>Kristiina Aalto</b> (National Consumer Research Centre, Helsinki)
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## The everyday to everyone: Young mothers in Net discussions

Presenter	<b>Anu Raijas</b> (National Consumer Research Centre, Helsinki)
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## Primary school children's experiences of daily family life

Presenter	<b>Taina Kyronlampi</b> (University of Helsinki)
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Discussant	<b>Jennifer Baxter</b> (Australian Institute of Family Studies)
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This research project focuses on studying the changes in the rhythms and practices of everyday life during critical transitional phases of family life. The project has three analytical levels: 1. the societal level in which collective rhythms and historical analysis of tensions in the rhythms are studied; 2. the family level, in which the creation of rhythms is investigated; and 3. the personal level in which the meanings of rhythms and the practices connected to them are studied. The research project is based on complementary sociocultural and phenomenological approaches. The symposium is divided into two sessions.

PART 1 The first session focuses on the rhythms of everyday life from collective rhythms to individual and family interpretations on daily rhythms and decision-making in family lifestage changes. Aalto and Varjonen study collective rhythms in families with children and their changes during the transition to parenthood. The paper investigates how daily rhythms change in the transition from young adulthood to having a family. The objective is to explore whether collective rhythms i.e. same activities at the same times of the day, can be found among men and women in the same stage of family life and how these rhythms change during critical transitional phases. The analysis is based on nationally representative time-use data. Raijas studies the dynamics of decision-making in family lifestage changes. The objective of the study is to increase understanding in the resource allocation and decision-making between spouses in lifestage changes. Kyronlampi investigates primary school children's experiences of daily living, environment, and what kinds of places home and nature are for the children in North Finland. The purpose of the study is to analyse how children (9–10 years) talk about their experiences. This study is based on Giorgi's phenomenological method. Discussant of Part 1 is Dr Jennifer Baxter.

## Workshop

Room 103	<b>WS EDU 2 Using non-linguistic teaching and learning strategies to build creative and innovative classrooms</b>	
Chair	<b>Janis Maas</b>	Australia
Presenters	<b>Laurel Tully</b> <b>Heather Mckenzie</b> (Strathmore Secondary College, Victoria, Australia) <b>Hayley Allen</b> <b>Glenis Heath</b>	

In this workshop a team of experienced teachers will share a range of successful instructional tools to improve teacher pedagogy and student learning outcomes. Most new knowledge in the classroom is presented to students in a linguistic form, either verbally or in written format. The teachers presenting this session will demonstrate how home economics teachers can capitalise on using strategies based on non-linguistic representations to enable students to understand knowledge in greater depth and to be more successful in recalling new knowledge. The presenters will draw on research from renowned international educators and demonstrate how the use of non-linguistic teaching strategies can build creative and innovative classrooms. The focus of the session will be on the use of a range of non-linguistic teaching strategies including visual imagery, kinaesthetic activities and graphic organisers. Visual imagery can be used to generate mental pictures, to create curiosity and to inform and cement new knowledge. Working with food in the home economics classroom provides opportunities for kinaesthetic activities and allows students to use all of their senses when learning. Graphic organisers enable students to develop a framework for their thinking by making connections, clustering information, seeing patterns and interpreting material. The examples to be presented in this workshop have been used effectively in secondary classrooms within Victoria, Australia and the United Kingdom. The use of non-linguistic instructional strategies has proved highly successful in engaging students and contributing to their ability to become sustainable learners. This will be an interactive session in which the audience will participate in a variety of activities using non-linguistic teaching and learning strategies.

## Concurrent sessions

Room 101	<b>FAM 3 Research into parental roles and policies</b>	
Chair	<b>Meesok Park</b>	

172	<b>Corporate social responsibility and family resource management in Japan</b>	
Lead author	<b>Etsuko Saito</b> (Ochanomizu University)	Japan

**Aim**

Corporate Social Responsibility (CSR) is a crucial factor in global business. In Japan, the concept of CSR has been employed as a business strategy since 2000. Although in other countries this concept incorporates quality of life, decent work and human rights issues, no attention has been given to such lifestyle issues in this country. Our concern here is to consider the relationship between CSR and lifestyle issues from the Family Resource Management perspective.

**Method**

1. We analysed information from the Statistics Bureau in Japan to clarify the lifestyle issues through the employment status, wage and time use.
2. We examined some CSR reports from Japanese companies to determine their CSR activities.
3. We conducted a case study in order to show the relationships between corporations, government and civil society.

**Results**

In Japanese companies, the lifestyle issues aren't reflected in their CSR. It seems that Japanese companies tend to use CSR reports as a market tool, not to describe their responsibilities but to analyse their opportunity.

**Conclusion**

Japanese corporations are not considering the lifestyle issues in their CSR. It is necessary for a corporation's CSR to be assessed in public policy and for citizens to take an active part in the solution of the lifestyle issues.

543	<b>A study of Japanese 'work-life balance' companies for gender-equality and wellbeing of families</b>	
Lead author	<b>Misa Morita</b> (Kochi University)	Japan

The purpose of this study is to point out profits and problems in Japanese 'family-friendly' and 'Kurumin' companies (the leading ones in supporting employees' child care leave), from the viewpoint of employees, by investigating how they feel about their working conditions. Previous studies have paid attention to the policies of these companies. However, these studies have not focused on the effects of the policies on the satisfaction of employees who are managing their work and family lives. Previous studies showed that they have actively planned and practised supporting employees' child care leave for recruiting top-class personnel and employees' work-life balance. However, Japanese working mothers feel that it is very hard to juggle work and family lives in spite of advances in such policies and practices. And in addition to that, we Japanese have serious problems in gender-equality and low birth rate. The survey was conducted from 2006 to 2011. Five main conclusions are drawn from the results:

1. The establishment of 'work-life balance' has contributed to creating a mood of flexible working conditions and 'childcare-supportive' conditions for employees.
2. Not all employees can use the policies even in such 'family-friendly' companies. Overtime should be eliminated in such companies.
3. Some policies are made for employees who have no family responsibilities. Employees with children have difficulties with such policies.

4. Employees do not know how they will be treated if they take childcare leave. 'Family-friendly' companies need to give them enough information, especially for young employees.
5. Promotion sometimes deprives employees of the use of 'family-friendly' policies. It is likely that female employees with children hesitate to apply for promotions. It is important for 'family-friendly' companies to solve this problem. This can also lead male employees to adopt more 'family-friendly' working styles.

According to these findings, this study suggests three points. Firstly, we have to reconsider the fact that Japanese society thinks highly of 'corporate-centered' society. Efficiency is important. However, corporations also need to accept people who need help (children) and those who help them (fathers and mothers). Secondly, we should question the reality of mothers' roles in child care. Japanese social agreements such as 'Children should be raised by society' have been formed. However, social norms still state that it is mothers who are chiefly responsible for taking care of children. And last, we have to eliminate discrimination, direct and indirect, against women.

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### A comparative study on characteristics of intergenerational support and conjugal relationships in Japan and Korea

Lead author	<b>Sujin Lee</b> (Hirotsaki University)	Japan
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#### Aim

In many previous research studies, the generation of married children has been considered as a support provider, with the focus on support of parents by their children. Also it has been shown that the parent generation takes the receipt of this support for granted. The reciprocity of intergenerational support that from the parent generation to their children's generation deserves special consideration. Moreover, intergenerational support between children and parents depends on discussion between spouses, and has an effect on the children's conjugal relationship. The purpose of this study is to explore the effect of intergenerational support on children's conjugal relationships. This support included support of married children by the husband's and/or wife's parents and support of the husband's and/or wife's parents by their married children.

#### Method

The data was obtained from EASS 2006 (East Asia Social Survey). EASS is a biennial social survey project that purports to produce and disseminate academic survey data sets in East Asia-Japan, Korea, China and Taiwan. I used Japan and Korea data and the survey was conducted at from June to October in 2006. The responses were gathered from married people who each had at least one parent. There were 670 responses (male 312, female 358) from Japan and 612 responses (male 252, female 360) from Korea used.

#### Results

Firstly, financial support by a married couple of a husband's parent was more common than support of a wife's parent. This was common to both Japan and Korea. Secondly, for Korean males, when the support provided to the husband's parents was greater than that provided to his wife's parents, their satisfaction with the marriage relationship was increased. On the other hand, for Korean females, when support from the husband's parents was greater than support given by the married couple to the husband's parents, their satisfaction with the conjugal relationship was high. Thirdly, for Japanese males, when support provided by a couple to the wife's parents was greater than support provided to the couple by the wife's parents, their satisfaction with the conjugal relationship was increased.

#### Conclusion

These results show that although husbands want to financially support their parents, they also desire support from their wife's parents, especially in Korea. Discord between husband and wife regarding intergenerational support is related to marital conflict in the children's generation. It is necessary to consider the balance between support to a husband's parents and support to a wife's parents. Also, the balance between support from a husband's parent and a wife's parent is a point to be considered.

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## Managerial support for fathers' parental leave use in Canada

Lead author	<b>Rachael Pettigrew</b> (University of Manitoba)	Canada
Co-author	<b>Karen Duncan</b> (University of Manitoba)	

### Aim

In Canada, parents who meet specific employment qualifications have access to maternity and parental leave following the birth or adoption of a child. Maternity leave entitles birth mothers to seventeen weeks of leave, and parental leave, which follows maternity leave, entitles new parents to thirty-five weeks of leave. Parental leave can be taken entirely by either parent or divided between the two parents. Although both parents have access to parental leave only a small percentage of fathers utilise this benefit, despite the proven developmental, social and emotional benefits for both fathers and their children. This gendered usage perpetuates the belief that family responsibilities are mothers' responsibilities. There are many explanations for the gendered use of parental leave, but research has shown that men are more likely to use parental leave if they report to managers who are supportive of their need to accommodate their family and work responsibilities. Therefore, this study explores the influence of managerial support in fathers' workplaces as a possible deterrent to leave use and seeks to identify manager characteristics that influence their support.

### Method

Much of the research specifically investigating the use of parental leave and the deterrents in the workplace has either been focused on mothers' use of such policies or has been conducted in the United States and Europe. To address the lack of research on fathers' use of parental leave in the Canadian context, the sample included 100 Canadian male and female managers from large employers (i.e. 350 employees or more) and specifically explores fathers' benefit usage. The managers completed self-administered questionnaires which, in addition to demographic and socioeconomic information, assessed the managers' attitudes toward the use of parental leave by male employees. Logistic regression was used to assess how managers' personal characteristics (e.g. sex, age and education) influence their support for parental leave use by male employees.

### Conclusion

Overall, managerial support was expressed for fathers' use of parental leave. In this paper, the results of the analysis are reported and the implications of the results for families, employers and public policy are discussed.

Room  
102

## EDU 09 Integrating technology into home economics

Chair	<b>Theresa Lai yeung</b>
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59

## Students' perspectives on the impact of implementing e-learning in a Home Economics collaborative programme between Japan and Singapore

Lead author	<b>Chiew Inn Ong</b> (Yuying Secondary School)	Singapore
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### Aim

The current education trend drives on the use of e-learning to prepare students for the knowledge-based economy of the 21st century. This research project aims to investigate students' perspectives on the impact of implementing e-learning through a home economics collaboration program between Japan and Singapore. It also seeks to examine the benefits and limitations encountered by students participating in this e-learning collaborative programme, and to gather their viewpoints on how to improve the effectiveness of the program.

### Method

I created the 'E-Learning Home Economics' wiki, hosted at <http://nyghe.wetpaint.com>, to serve as the platform for the collaborative program. The wiki enabled students from the two countries to collaborate and work on a home economics project together in different groups. They are required to compare the similarities and differences between the food pyramids from Japan and Singapore. They also used the national health data from these two countries to evaluate which pyramid provided a better guide to a healthy diet, and subsequently create an interesting one dish meal using this pyramid as a guide. This qualitative study uses the evaluative case study approach and employs the data collection methods of a group administrated qualitative survey questionnaire and semi-structured focus group interview. The participants in the home economics e-learning collaborative program were 38 Secondary One Singaporean students. Data collected were analysed using the Miles and Huberman (1994) Framework for Qualitative Data Analysis.

### Results

Findings from the study show that the participants enjoyed the program and perceived that e-learning contributed to their learning. Flexibility and accessibility, both in terms of time and place, are widely regarded as the main benefit of e-learning. E-learning promotes cross-cultural interactions, and the participants also interacted actively in the collaborative learning. Lack of face-to-face interactions with the teacher, delay in feedback, and technical problems are some limitations of e-learning perceived by the participants. They cited more opportunities for video-conferencing, using other e-learning tools and collaboration with local schools as some recommendations to improve the programme.

### Conclusion

Looking at the future, learning will be accessible anytime, anywhere. For this reason, teachers have to devise approaches that integrate technologies in their teaching practices to enable independent learning, and create an environment that emphasises collaboration and exchange of ideas. The results from the findings will be used to develop better e-learning strategies, and to improve on the collaborative program.

100	<b>Promoting home economics through cultural diversity: An international ICT exchange program</b>	
Lead author	<b>Atsuko Yamaguchi</b> (freelance home economist/Nagoya Women's University)	Japan
Co-authors	<b>Chiew Inn Ong</b> (Yuying Secondary School, Singapore) <b>Yasutoshi Shirai</b> (Nagoya Women's University, Japan) <b>Yasutoshi Hirayama</b> (Hisai High School, Japan) <b>Emma Collins</b> (editorial board of <i>International Journal of Consumer Studies</i> , UK)	

### Aim

Effective home economics (HE) education programs in schools and higher education are needed to sustain and further advance the field of HE. The purpose of this ongoing study was to develop a successful international exchange program that allowed valuable exploration of cultural diversity through HE. The aims of the project were to encourage and engage students, teachers and research specialists from some institutions through a variety of ICT techniques.

### Method

Four cases were implemented during 2006–2009 as follows: 1. e-mail exchange, video-conferencing, and constructing a webpage on food and culture between high school students; 2. video-conferencing on the life, society and HE education between junior high school students and college students; 3. group work on consumer's food choice and environment through online exchange platform between high school students; 4. group work on comparison of food pyramids through online exchange platform using wiki between high school students. College students participated in cases 1, 3 and 4 as coordinators.

### Results

The results were indicative of multiple benefits. In addition to learning about HE in different countries, the programs further developed students' knowledge and skills. Students enjoyed the collaborative learning, college students were more interested in HE and learnt how to implement an international exchange program, and teachers and researchers began networking.

### Conclusion

These programs provide valuable insight into the value of HE as a subject for international exchange and the possibility of developing future professionals through the strategies. It offers the potential to develop similar collaborative programs between other countries.

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### Collaborating with millennials to promote your program

Lead author	<b>Deborah Tippett</b> (Meredith College)	United States
Co-authors	<b>Nina Bostic*</b> (Meredith College) <b>Lauren Reynolds</b> (Meredith College) *co-presenter	

The millennial generation, born between 1982 and 2002, has lived in an age surrounded by technology. They use texting, instant messaging, Twitter, live streaming, social media sites, chat rooms and blogs as a way of learning and collaborating. This session will illustrate how a college department utilised the technological skills of students to create and implement an online alumni magazine, HALO. The purpose of the magazine was to explore the professional lives of Human Environmental Sciences alumnae from Meredith College and more specifically how they were applying their respective degrees. Alumnae were contacted via faculty recommendations and independent research through social networking sites. Out of the pool of fifty alumnae, in depth interviews were conducted. Research gained from these interviews were 1) an improved understanding of how HES alumnae are using their degrees, 2) a realisation of the evolution of career paths of HES alumnae, and 3) knowledge of how HES alumnae are shaping the future of the profession. A Facebook fan page for HALO was created and will be used to build collaborations with alums. The presenters of this session will:

- Interpret characteristics of the millennial generation and their use of technology
- Give examples of ways in which millennials learn and collaborate with each other
- Describe how college students researched and implemented an online magazine using social medial sites.

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### Effective technology integration for home economics teaching

Lead author	<b>Leanne Compton</b> (Victorian Department of Education and Early Childhood Development)	Australia
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Technological Pedagogical Content Knowledge (TPACK) is a framework for defining what teachers need to know in regards to effective integration of technology into their teaching practice. At the heart of the TPACK framework is the complex interrelationship between three types of knowledge – content knowledge, pedagogy knowledge and technology knowledge. In other words, TPACK endeavours to capture some of the essential qualities of knowledge required by teachers for technology integration in their teaching, while addressing the complex and multifaceted nature of teacher knowledge. This presentation will describe the three types of knowledge required by home economics teachers for effective pedagogical practice in a technology-enhanced classroom. In particular, it will explore the types of technologies to use with what pedagogies for teaching specific home economics content for a contemporary curriculum. It will attempt to answer the following question: 'Which one of an ever-creasing number of digital tools do I use to optimise learning and teaching in the home economics classroom?' by focusing on the following:

- The existence, components and capabilities of various technologies as they are used for learning and teaching in home economics.
- How teaching practice in home economics might change as the result of using particular technologies.
- Understanding a range of tools that exist for a particular task.
- Pedagogical strategies most suitable to use with particular technologies in home economics.

The aim of this presentation is for participants to gain an overview of how effective technology integration for teaching specific content in home economics requires understanding and negotiating the relationships between technology, pedagogy, and content.



Room  
104**FDN 3 Promoting food security: global perspectives**Chair **Midori Kasai**

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**Factors affecting availability, food choices and nutritional adequacy of smallholder farming households under irrigation and dryland farming in Vhembe district of Limpopo province, South Africa**

Lead author	<b>Lucy Maliwichi</b> (University of Venda)	South Africa
Co-authors	<b>Stephen Oni</b> (University of Venda) <b>Segun Obadire</b> (University of Venda)	

The aim of this study was to investigate the availability, food choices and nutritional adequacy of the diet of households in the study area. Both primary and secondary data were used in this study. The primary data was collected by using a pre-tested questionnaire administered to selected farmers in the study area and focus group discussion. A probability sampling method was used to select the respondents. From a total population of 3,236 small-scale irrigation farmers in Vhembe District, 147 respondents who happened to be irrigation farmers were randomly selected while 43 dry land farmers were selected adjacent to the selected irrigators. The study revealed that there was lack of food variety in the daily diets of both irrigation and dry land farmers. A one week food frequency consumption recall showed that households from both irrigation and dry land farming had low intakes of foods from milk/milk product group, fruit/vegetable group, meat and legume group. A large percentage of farmers in the study area obtained their carbohydrate food group from maize. Availability of certain foods such as fruits and vegetables depended on the seasons of the year. Other foods like milk and dairy products, meat and legumes depended on the farmers' purchasing powers. This study revealed that the type of carbohydrate food eaten the most is maize meal (porridge) which is eaten seven times in a week by a large majority of the respondents (about 60%) out of 190 respondents, while very few ate other carbohydrate foods and only less than 1% included oats in their meal a few times in a week. This could be because maize meal porridge is the staple food eaten in the Vhembe District. The study revealed that household food security depends on a nutritionally adequate and safe food supply, at the household level and for each individual; a fair degree of stability in the food availability to the household both during the year and from year to year; and access of each family member to sufficient food to meet nutritional requirements. The study suggests that households that need to be targeted for food aid are those with large families, and those without access to irrigation projects. Also to be included are those families with few assets, and those without access to agricultural land and implements.

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**Food insecurity among Chinese households in People's Housing Project (PPR) Air Panas, Setapak, Kuala Lumpur, Malaysia**

Lead author	<b>Norhasmah Sulaiman</b> (Universiti Putra Malaysia)	Malaysia
Co-author	<b>Yong Pei Pei</b> (Universiti Putra Malaysia)	

**Aim**

This study examines food insecurity among Chinese households in People's Housing Project (PPR) Air Panas, Setapak, Kuala Lumpur, Malaysia.

**Method**

A simple random sampling was used to select 109 respondents. The respondents were interviewed face-to-face about their demographic and socioeconomic characteristics, household food security (Radimer et al, 1990), coping strategies for food insecurity (Norhasmah, 2010) and information on dietary intake. Anthropometric measurements were also collected from the respondents.

### Results

A majority of the households (50.6%) had some kind of food insecurity with 18.5% assigned to household food insecurity, followed by 14.8% individual food insecurity and 17.3% child hunger. About 91.4% of the households preferred to 'use less expensive food' and 87.7% of the households preferred 'buying less expensive products or shopping at a cheaper place' as coping strategies to prevent food insecurity. There were significantly increasing trends in mean number of household size ( $p<0.001$ ), number of children ( $p<0.001$ ), number of children at school ( $p<0.05$ ), number of disabled family members ( $p<0.001$ ), body mass index (BMI) ( $p<0.05$ ), waist and hip ratio (WHR) ( $p<0.05$ ) and waist circumferences (WC) ( $p<0.05$ ) with severity of food insecurity. There were significantly decreasing trends in mean household income ( $p<0.05$ ), years of schooling ( $p<0.05$ ), food expenditure ( $p<0.05$ ) and non-food expenditure ( $p<0.05$ ) with severity of food insecurity.

### Conclusion

Food insecurity is a major public health problem among Chinese households in PPR Air Panas, Setapak, Kuala Lumpur, Malaysia. Diverse risk factors and consequences of food insecurity emerged in this study. Therefore, Chinese households with these circumstances ought to be given priority to intervention programs that address food insecurity by policy makers and programme implementers. Conducting rigorous studies to assess the prevalence, distribution and severity of food insecurity among Chinese households in different geographic areas is highly recommended.

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## Food management challenges of working mothers in Abia State: Coping strategies for sustainable futures

Lead author

**Georgina Anozie** (Michael Okpara University of Agriculture, Umudike)

Nigeria

### Aim

The study identified the food management challenges of working mothers in Abia state and the coping strategies for sustainable futures.

### Method

To achieve the above objective, two research questions were employed. A purposive sample of 560 working mothers in Abia state was used for the study. Validated questionnaire was used for data collection. The data collected for the study was analysed using frequencies and means.

### Results

The study revealed five major challenges faced by working mothers in the management of family feeding. These include scarce energy resources, lack of cooperation from their husbands, expensive food resources, time factors, poor storage and preservation facilities.

### Conclusion

Working mothers in Abia state face some challenges in the management of family feeding. As a result of these challenges, family members are sometimes not adequately fed. Coping strategies for sustainable future were also recommended.

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## The contribution of home gardens, community gardens and wild foods to household food security in KwaZulu-Natal, South Africa

Lead author

**Corrie Du Preez** (University of Zululand)

South Africa

### Aim

Although South Africa as a country can be seen as food secure, 26.9 per cent of the households in KwaZulu-Natal, South Africa, which participated in the General Household Survey of 2010 (Statistics South Africa 2011) reported inadequate or severely inadequate access to food. The main aim of this study was to assess household food security and the contribution of home gardens, community gardens and wild foods to household food security in selected districts in the KwaZulu-Natal province of South Africa.

**Method**

Quantitative data was collected by means of a structured interview schedule which included sections with questions on: demographic and socio-economic household individual and characteristics; services and infrastructure; food production in home and community gardens; utilisation of wild foods; and access to, expenditure on and consumption of food. The latter was done by means of a food frequency questionnaire. Purposive sampling was used to deliberately include some households with home gardens and some without for purposes of comparison.

**Results**

Data were collected from 240 households located in five districts in KwaZulu-Natal. Household size varies greatly and many households are dependent either entirely or partially for their monthly income on government social grants. The majority of households have home gardens while very few participate in community gardens. Home gardens are mainly established by women, with some community gardens targeting men and youth. Commonly produced vegetables include spinach, cabbage, onions and tomatoes. Although households consume the majority of what they produce, surplus crops, fruits and vegetables are sold to buy other essential goods. The majority of households collect wild foods to supplement and add interest to their diet. Poorer households spend a large proportion of their income on food. Many households indicated that they sometimes run out of food and the main coping strategy is to borrow food. In general, households consume a limited variety of foods, but results indicate that households that produce vegetables consume a greater variety of foods.

**Conclusion**

The nutrition security of individuals can be enhanced by establishing home gardens as it can increase the intake of micro nutrients. Household food security can be further improved if households can preserve surplus fruits and vegetables for consumption in seasons when these are not available. Community gardens can be an alternative where land is not available to establish home gardens or where gardens can be established to benefit feeding schemes for ill persons and child-headed households.

Room  
105**CSD 3 Issues of consumerism and finance across cultures**

Chair

**Karin Hjalmeskog**

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**Health and household saving behaviour**

Lead author

**Patti Fisher** (Virginia Tech)

United States

Co-author

**Sophia Anong** (University of Georgia)**Aim**

The purpose of this study is to investigate the effect of poor health on household saving behaviours. According to Smith (1999), lifecycle models are a natural place to begin exploring how health is related to family savings decisions, but health has not generally been an integral part of theoretical and empirical work on motivations to save. Thus, we use a lifecycle saving framework to explore the relationship between poor health and the habit of saving regularly.

**Method**

The data used in this study came from the 2007 wave of the US Survey of Consumer Finances (SCF), a nationally representative data set that provides information on household assets and liabilities as well as self-reported financial behaviours. Households with a retired respondent and/or spouse are omitted from the sample because their saving behaviours have been shown to differ from those of non-retired households. The total sample size in the present study is 3524 households. Logistic regression is used to estimate the empirical model, with saving regularly as the dependent variable (saving regularly by setting aside a certain amount each month or saving the income of one spouse). The explanatory variables include poor health, health insurance status, life cycle variables, and socioeconomic controls.

### Results

Being in poor health is associated with a significantly lower likelihood of saving regularly ( $p < 0.01$ ). Those in poor health are significantly less likely to save regularly, as are those in fair health. Having private health insurance is associated with a higher likelihood of saving regularly ( $p < 0.01$ ), while having government-sponsored health insurance (e.g. Medicare for seniors and Medicaid for low-income) is also associated with a significantly higher likelihood of saving regularly ( $p < 0.05$ ).

### Conclusion

The results of the current study indicate that households with a respondent and/or spouse (if present) in poor health are less likely to save regularly. This is in agreement with the argument of Smith (1999) that savings may fall as current health deteriorates because poor health reduces current income or increases consumption or medical expenses. There is an interesting connection between health insurance and savings behaviour, where both private and government health insurance are associated with an increased likelihood of saving. Further research on the relationship between health status, health insurance, and saving behaviours is necessary.

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## Legal literacy on hire purchase transactions, personal loans and credit cards among public servants in Malaysia

Lead author	<b>Elistina Abu Bakar</b> (University Putra Malaysia)	Malaysia
Co-authors	<b>Husniyah Abdul Rahim</b> (University Putra Malaysia) <b>Afida Mastura Muhammad Arif</b> (University Putra Malaysia) <b>Bukryman sabri</b> (University Putra Malaysia)	

The widespread usage of financing facilities has raised concerns on consumers' ability to manage their finances effectively. Interested groups, including policymakers, are concerned that consumers lack a working knowledge of financial transactions and do not have the tools they need to make decisions most advantageous to their economic wellbeing. Legal literacy in consumer credit transactions empower consumers to be better positioned to take responsibility for their own wellbeing. The objective of this paper is to explore consumer legal literacy on hire purchase transaction, personal loans and credit card among those who are working in public sectors in Malaysia. A total of 450 respondents were selected through a random sampling and data were collected using self-administered questionnaire which was designed based on the available legal provisions in Malaysia which are Hire-Purchase Act 1967, Moneylenders Act 1951, Pawnbrokers Act 1972 and the Credit Card guidelines as currently issued by Central Bank of Malaysia. The findings revealed that most of the respondents had moderate knowledge about certain aspects of loan borrowing. The result also did not demonstrate any significant difference in the case of gender and age for all types of credit transactions. However, there was significant difference in relation to types of employment in hire-purchase transactions. Meanwhile, there were significant differences by education and monthly income in credit card facilities, while there were differences in respect of marital status and types of employment in personal loan financing. Thus, this study suggests that for policy implications, the respective bodies should inculcate legal literacy to all consumers irrespective of their gender and age.

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## Building a new lifestyle for a sustainable society through the reduction of CO<sub>2</sub> emissions: A proposal based on the calculation of family expenditure and an environmental input/output table for the last three decades in Japan

Lead author	<b>Chiho Oyabu</b> (Gifu University)	Japan
Co-author	<b>Toshiharu Sugihara</b> (Gifu University)	

### Aim

Modern lifestyle has caused many environmental problems including radioactive pollution. It is essential to change our lifestyle for a sustainable society with a low-carbon emission. The realisation of change is urgent because of the catastrophic disaster of Fukushima nuclear power station in Japan. This research aims to analyse CO<sub>2</sub> emissions from Japanese households over the last 29 years (1980–2008) to propose a means towards a low-carbon society.

### Method

The data used are family expenditures for 85 commodities such as rice and beans in the Annual Report on the Family Income and Expenditure Survey by Statistics Bureau in Japan, consumer price indices, and CO<sub>2</sub> emission points in the Environmental Input Output Table. CO<sub>2</sub> emission for each commodity is calculated by multiplying the expenditure and the CO<sub>2</sub> emission point of a commodity. CO<sub>2</sub> emission for ten categories of consumption expenditures such as 'food', 'clothing and footwear' and 'fuel, lighting and water' are then ascertained.

### Results

Though the consumption expenditure and CO<sub>2</sub> emission both decreased in 2008 compared to 1980, the decrease rate of the latter is smaller (5%) than the former (13%). This is due to the high contribution of the two consumption expenditures 'fuel, lighting and water' and 'transportation and communication', to the CO<sub>2</sub> emission in spite of the emission decrease for the expenditures of 'clothing and footwear', 'food', or 'education'. The consumptions of 'fuel, lighting and water' and 'transportation and communication' share the large rate in CO<sub>2</sub> emission in 2008. CO<sub>2</sub> emission by the consumption of electricity or gasoline increased with years and they shared the most (32.4%) in the whole CO<sub>2</sub> emission in 2008. Moreover, CO<sub>2</sub> emission by their consumption is larger with higher household income. As for age, the emissions from the households with a head aged in the fifties is the largest because of the family size.

### Conclusion

The results show that our lifestyle has become a more energy-consuming one, resulting in the increase of CO<sub>2</sub> emission. We can indicate a means to reduce CO<sub>2</sub> emission in our daily life. Reducing the use of electricity and gasoline must be effective for the reduction of CO<sub>2</sub> emission and done by the revised use of electric appliances and automobiles. The success of the practices could be dependent on the people's consciousness which is now under our investigation.

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## Thai food business model in ASEAN markets: Focus on the Socialist Kingdom of Cambodia

Lead author	<b>Renumas Gulasirima</b> (Suan Dusit Rajabhat University)	Thailand
Co-author	<b>Premruetai Yambunjong</b> (Panyapiwat Institute of Management)	

### Aim

'Thai food and Thai cuisine from the past to the present are distinctive in their charms and characters. The cuisine is a proud heritage of the Thai people that they believe is second to none, and it has been handed down through generations .. Today, Thai food and Thai cuisine stand ready to make Thailand a proud Kitchen of the World' (The Government Public Relations Department 2011). ASEAN has a large population and Thailand should hold this market and seek to expand it. The objectives of the research are to study situation, market potential, consumer behaviour and the image of Thai food business and to devise a Thai restaurant business model for ASEAN, focused particularly on Siem Reap and Phnom Penh in Cambodia.

### Method

Mixed methodology, using both qualitative and quantitative methods, was employed. The current situation, consumer behaviour, and trends of the Thai restaurant business in Siem Reap and Phnom Penh were revealed from the samples of 350 tourists by questionnaires with convenience sampling and stakeholders consisting of in-depth interview with 30 key informants of each area selected by purposive sampling from the following six groups: Thai restaurant entrepreneurs, tourism enterprises, tourists, guides, Thai food professionals, and government officials.

### Findings and discussion

As indicated in current ASEAN market policies, Thai food businesses in Siem Reap and Phnom Penh mainly depend on the consumer target groups at the level of both local people and tourists i.e. upper class, medium class and lower medium class respectively. The potential of Thai food business has a great chance to be outstanding with a high level of recognition by ASEAN countries. In focusing this business in Cambodia, Thailand's advantage is higher than the other countries. To bring Thai cuisine to the ASEAN market in the future, Thai businesses should be adapted to suit the changing times and lifestyles of ASEAN's community. The most important factor influencing foreign investment in this country, besides the government's policies of investment support, promotion of tourism and related business, and free markets, is the capacity to increase the number of quality restaurants (and other infrastructure) as the number of tourists increases. The greater the opportunity, therefore, for Thai food investors to be a competitive position in this country. Other factors influencing the overall business environment are ongoing issues throughout the ASEAN community, including laws and regulations, political uncertainties and government stability, communication and the labour force.

Room  
107**HEA 4 Programs and strategies for better health:  
global case studies**Chair **Inger-Lise Fevang Jensen**

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**Capturing the 'Net' generation to be smokefree**Lead author **Bianca Crosling** (Quit Victoria)

Australia

Co-author **Sally Martin** (Quit South Australia)

One of the greatest challenges for youth health promotion is social change. Social marketing messages need to reach audiences where young people interact, play, communicate, watch and create. The internet has increasingly become one of the most important media through which young people learn about themselves, their peers, their community and the world through which beliefs and identity are constructed. [www.OxyGen.org.au](http://www.OxyGen.org.au) is a tobacco education website that aims to inform young people about smoking. Since its conception in 1999, the website has been redeveloped twice to incorporate latest web technologies, web formats and fresh graphic design concepts. It aims to be a fun, interactive and user-friendly website with the aim of increasing its use by Australian teenagers. This paper provides an overview of the online interactives and the communication strategy that the OxyGen management group employs to attract and engage young users in tobacco education. In addition, latest OxyGen evaluation findings and website statistics detailing usability of the website and trends over time will be presented. The key message and objective behind OxyGen strategies is to cut through the media clutter young people live in; health messages need to be edgy and savvy – personal, humorous or disgusting – to attract and engage young people's attention. OxyGen has tobacco education games; a range of video clips to watch and rate throughout the entire website; online polls; quizzes; and the opportunity for young users to contribute content. Encouraging young people to express their views on tobacco by uploading their music, artwork, video clips or written stories gives young people a voice and the opportunity to influence peers' beliefs and values about smoking. Website statistics indicate that visits to OxyGen are increasing each week and that the games section is the most popular section of the website. The average unique visitors per month to OxyGen are 6,983, which is an increase of 22% over the past 12 months. Increasing opportunities for young people to submit content through rearranging the navigation has resulted in more submissions to OxyGen. Updating content and images on the homepage keeps the website looking fresh and up to date. The internet has many opportunities to encourage and educate youth learning and empowerment. It is a tremendous health resource that can be cost effective and has the potential to reach millions of people. The management group is identifying future opportunities for increasing awareness and usage of OxyGen.

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**Higher education network for applied human nutrition  
between Eastern Africa and Europe: Results of a  
European-funded project**Lead author **Ingrid-Ute Leonhaeuser** (Justus Liebig University Giessen)

Germany

Co-authors **Susanne Dreschl-Bogale** (Justus Liebig University Giessen)  
**Michael Leichsenring** (Universitat Ulm)**Aim**

The dimensions of hunger and malnutrition demanding all possible forms of intervention are alarming and cannot leave anyone indifferent. Malnutrition is a reality for many impoverished families in East Africa e. g. Ethiopia, Kenya and Uganda. To address these problems nutritionists need to be trained to work hand in hand with health professionals to assist with the required dietary changes to reduce disease progression. There is an urgent necessity to improve human nutrition in Eastern Africa through enhanced higher education (HE) in Applied Human Nutrition Programs (AHN). The objectives are to develop innovative and harmonised curricula, to establish a HE network for AHN linking East African countries and Germany, and to build capacity of participating institutions.

### Method

A task force started its work with a preparation for the curricula review of the five partner universities. A conceptual framework for a harmonised curriculum was worked out with the help of local and international experts. To identify possible gaps between what is actually done and what should be done according to stakeholders – university staff in management positions for nutrition programs, former students in nutrition – a training needs assessment questionnaire was conducted. Subjects covered were: training needs; resources needed for libraries and laboratories; staff exchange; identification of courses to be taught by visiting experts from partner universities and other institutions.

### Results

An innovative and harmonised curricula for higher degrees in AHN in the East African Region has been developed. A major limitation is the lack of mutual recognition of credit points and certification, which limits African integration and the mobility of students across Africa for overcoming regional challenges through optimal use of highly trained professionals. For the revision of teaching material a chat room for a discussion forum was established on the HENNA platform where groups of experts were also working on the revision of the courses. All updated courses were collected in the Booklet for Harmonised Curricula. The HENNA platform is based on Moodle, an open-source learning management system which can be modified according to the needs of the project participants as users. In its present version the platform is also providing information on various libraries for exchange and review of publications.

### Conclusion

The project will establish harmonised higher education systems across East Africa. It will strengthen the capacity of nutritionists, enabling them to solve the immense the nutritional problems of their countries.

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## Use of MyPlate as an educational intervention: Developing capacities as a pilot project in Texas, USA

Lead author	<b>Valencia Browning-Keen</b> (Sam Houston State University)	United States
Co-author	<b>Dr Paula Tripp</b> (Sam Houston State University)	

The Department of Family and Consumer Sciences (FACS) at Sam Houston State University is dedicated to providing students with intellectual and professional skills relating to sustaining individual and family needs. Curriculum and research efforts in FACS prepares students to examine and respond to questions and concerns to enhance national sustainability while equipping students with financial literacy skills, health, nutrition and wellness information and parenting as well as family life knowledge. Since the motto of the university has been 'the measure of a life is its service', two of the faculty within this department choose to be a part of the solution behind the childhood obesity epidemic by reaching out to numerous intervention programs that service minority participants and see childhood obesity on a daily basis. According to 2009 US census data, in Walker County, Texas, where Sam Houston State University is located, just over 23% of the population is below the poverty level compared to 17% for all of Texas. In addition, the 2010 primary ethnic population of Walker County compared to Texas is as follows: White 67.1%/70.4%; African American 22.5%/11.8% and Hispanic or Latino 16.8%/37.6%. During 2009–2010, Head Start and Early Head Start in Walker County served 673 families and 755 children. Physical examinations were conducted on 89% of those children. Since food security consistency can sometimes be an issue with Head Start and WIC families (i.e. beneficiaries of the US Women, Infants and Children program) as well as a new paradox identifying that overweight and obesity may be in homes that are food insecure, a natural site for investigation into the paradox would be the Head Start and WIC programs. While Head Start and WIC have made significant contributions to intervening when a child or postpartum mother sustains weight gain, the introduction of the MyPlate agenda and program provides an opportunity for academia to investigate its influence, success and role in managing childhood overweight and obesity while also providing additional resources and services to the Health Services of Head Start and WIC in an already overwhelmed system in challenging economic times. The program model and implementation will be shared during the session. The goals of the grant-funded project are to determine whether the MyPlate information led to a significant reduction with excess BMI and whether or not a new or different model is necessary to be effective in reversing the trend for childhood and subsequent adult obesity.

Room 110	<b>EDU 08 Rethinking the dimensions of home economics education</b>
Chair	<b>Carol Darling</b>

552	<b>A platform for a 21st century home economics curriculum</b>	
Lead author	<b>Janet Reynolds</b>	Australia

With the advent of a new national curriculum for Australian schools, the Australian home economics profession has yet again been called upon to establish its position in the new curriculum. As part of its advocacy to the newly formed Australian Curriculum, Assessment and Reporting Authority (ACARA), the Home Economics Institute of Australia (HEIA) developed a position paper that argues its case for home economics in a 21st century curriculum. The draft paper was widely canvassed among the members of HEIA, with members across Australia providing feedback via written and online surveys, focus groups and web conferencing. This presentation will outline the key tenets of the resulting HEIA position paper. It will argue the need for home economics education in the current Australian societal context and explore HEIA's conceptualisation of the home economics curriculum that was put to ACARA. This will include, for example, how home economics is defined, the core content and pedagogic approaches of a contemporary home economics curriculum, and the general capabilities developed in home economics courses of study. As the presentation progresses it will become clear that Australian home economics professionals are committed to a 21st century curriculum that embraces a socially just and sustainable society, both locally and globally. This will be evident with an explanation of how the areas of study are conceptualised as well as in the examples provided of how general capabilities such as ethical behaviour, social competence, intercultural understandings and teamwork are played out in a home economics classroom.

584	<b>Redesigning (rationalising) home economics for changing times: Experiences of the University of the South Pacific</b>	
Lead author	<b>Vulori Sarai</b> (University of the South Pacific)	Fiji

The Home Economics (formerly Food and Textiles) curriculum was required by the University of the South Pacific in 2008 to rationalise its courses to meet the minimum enrolment numbers of 30 for courses both at 100 and 200 levels and 15 at 300 level or risk being phased out. This imposition necessitated a totally new approach and consideration which contributed to the creation of a new TVET curriculum. The new curriculum (program) resulted from the combining, re-packaging and rewriting of the old traditional specialisation of Industrial Arts (IA) and Home Economics (HE) and merging of resources while maintaining best practice. The TVET program had existed since the USP was established and enrolments hardly exceed 15 at the three levels so the only option available is to identify those common courses between IA and HE and combine them to teach them as generic courses. The process of developing the alternative generic courses has been an interesting experience with enrolments comfortably above the minimum requirements, even exceeding 100 in a particular course. This paper enumerates the initial difficulties and issues needed to be dealt with, apart from redesigning suitable curriculum, including staff having to adapt to new content (particularly relevant contextual applications), suitable space, resources and scheduling to accommodate the bigger classes (now double previous numbers). This paper also highlights the benefits from broader applications of course content and the truly co-ed nature of the new courses which students seem to really enjoy participating in and the interchange of alternative ideas particularly in the design courses.



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**Family: Is it that important?**

Lead author

**Jeanne Godin** (Universite de Moncton)

Canada

**Aim**

Are the concepts present in the body of knowledge model for family and consumer sciences important to young adults? The current family and consumer sciences body of knowledge model prepared by Nickols, Ralston, Anderson, Browne, Schroeder, Thomas and Wild (2009) outlines the conceptual scope of the field, but one wonders if these concepts are still in tune with today's 21st century youth.

**Method**

This exploratory quantitative study investigated how 42 university students from Canada, who have been attending university for at least a year, responded to 14 statements representing the relevance of these concepts in their lives.

**Findings**

Through descriptive statistics, the results of this study show that today's young adults consider the family to be important for continual support and during times of change. Even if they believe that family is the most important part of society and that diversity strengthens communities, results also show that these young adults do not believe that their actions contribute to the quality of life of their community and moreover, few of them vote or participate in volunteer organisations.

**Conclusion**

If our profession uses an integrative approach to the relationships between individuals, families and communities, this exploratory research indicates that more emphasis should be put on the relationship between community and families in our programs. This initiative could enhance the capacity building of communities. A similar study could be led with a larger sample and in different regions to validate these results.

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**The domains of family practice model: Re-conceptualising the domains and boundaries of family life education, family therapy, and family case management**

Lead author

**Carol Darling** (Florida State University)

United States

Co-authors

**Sharon Ballard** (East Carolina University)  
**Karen Myers-Bowman** (Kansas State University)  
**Judith Myers-Walls** (Purdue University)

Many international family educators and scholars have struggled to identify the domains and boundaries of various family-related professions. With family as a core of home economics/family consumer sciences, the ability to characterise and differentiate the various fields related to studying families and providing services for family wellbeing is essential. Since the first efforts in family life education (FLE) were begun, authors have attempted to define this evolving field, but the overlap among family-serving professions has often been confusing for both professionals and families. Some scholars have defined FLE and some have differentiated it from other family-related fields. For example, Doherty (1995) provided a definition of the boundaries between FLE and family therapy (FT); however, those criteria are incomplete and outdated. Thus, we recently developed a new model to define the domains and boundaries of family practice. Our goal is to position FLE, FT, and Family Case Management (FCM) as related but unique professions, rather than suggesting one is more advanced than the others, and to provide assistance for family professionals as they define the parameters of their work. All three fields emphasise the importance of the family context, but have different viewpoints, use different tools, and take different paths as they work with families. The three fields are intimately interrelated and interdependent and are all critical pieces of the complex puzzle involved in working with families. This presentation explores the professions of FLE, FT, and FCM using the questions of Why (purpose), What (content or research base), When (when services are provided and what the time orientation of services is), For whom (eligibility and motivation of recipients), and How (processes used to work with family members) of each profession. After examining these questions for each profession, the Domains of Family Practice Model is used to differentiate among them and provide clarity. This approach not only defines the three fields, but also encourages appropriate collaboration and includes models to explain the limits and overlap of these three fields. The analysis within the paper/presentation

should help professionals and those who use their services to identify more clearly each of the domains and the boundaries around them and facilitate collaboration when appropriate. Suggestions will be made for using this model for various purposes including education, career exploration, creating and reviewing job requirements, examining role consistency and clarity, and determining the need for and appropriateness of referral and collaboration.

Room  
111

### TEX 4 Technology of fabrics and fibres

Chair **Gail Boddy**

43

### The influence of anolyte as an environmentally friendly disinfectant on the strength properties of cotton, polyester/cotton and polyester

Lead author	<b>Jana Vermaas</b> (University of the Free State)	South Africa
Co-author	<b>Hester Steyn</b> (University of the Free State)	

#### Aim

Usually textile materials are treated with chemicals like sodium hypochlorite and with temperatures up to boiling point to make it sterile. This poses two potential problems: 1. it has a negative effect on strength properties of the textile fabric; 2. the harmful chemicals are discarded into the environment. Therefore the aim was to determine if anolyte could be an environmentally friendly and effective replacement for chemicals such as sodium hypochlorite and to determine if it could be effective without such high temperatures. A process has been developed where electro-chemically activated water is produced by an anode-cathode system and the process is described as a change of the molecular state of the water. After production the Anolyte exists in a metastable state while containing many free radicals and a variety of molecules and very high oxidation-reduction potential. It returns to a stable state after 48 hours and become inactive again and therefore it is not a threat to the environment when discarded after use.

#### Method

AATCC Test Method 61-2009 was used with the LaunderOmeter. Wash liquors included filtered water, Phosphate reference detergent B, sodium hypochlorite and anolyte. Temperatures were maintained at 24, 30 or 60°C. The cotton, polyester/cotton and polyester were laundered for 5, 10 or 20 cycles respectively. The tensile strength tests were conducted with the Instron Tensile Tester and ISO/SANS 13934-1:1999 test method. The tearing strength tests were conducted with the Elmendorf Tearing Strength tester as per ASTM Test Method D 1424–63.

#### Results

It was determined that the tensile strength of the polyester, cotton and polyester/cotton didn't decrease with an increase in laundering cycles. However, the combination of temperature and number of cycles resulted in a decrease in strength. Tearing tests indicated that the cotton showed a decrease in strength with the number of cycles and increase in temperature. The polyester/cotton showed a slight decrease in tearing strength with the increase of temperature and number of cycles. Polyester showed no change in tensile properties.

#### Conclusion

This study aimed to evaluate the effect of the anolyte on the textile fabrics in comparison with other washing agents. The results lead to the conclusion that the anolyte does not affect the textile fabrics more negatively than the detergent and sodium hypochlorite combination, and could therefore be a successful alternative.

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### Reducing dust in the yarn dye with ebony colourant using the water steaming process.

Lead author	<b>Poonsook Boonyanate</b> (Chiang Mai Rajabhat University)	Thailand
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The dark brown cotton fabric made from yarn which is dyed with a natural colourant from ebony is widely appreciated by foreign consumers; but there is insufficient production due to the problem of dust being emitted in the processes. It is evidenced that workers involved in the processes are at risk from allergies or respiratory illnesses. This study attempts to experiment with water steaming as a process of reducing the dust caused by the ebony dye. A large steaming pot was made such that it could accommodate a large amount of yarn. Observations and interviews with the subjects were conducted and the data were analysed qualitatively and quantitatively. The percentage and arithmetic mean statistics were employed. The steamer constructed is cylindrical. In each steaming, 60 skeins were used with 45 litres of water at 90 degrees Celsius. It was found that the water steaming makes the yarn softer and lighter. When washing, the steamed yarn emitted 81.80% less dust than did the unsteamed counterpart with 60% less water used. The weavers were satisfied with the yarn being steamed for 30 minutes. The steamed yarn gave out 77.03% less dust during weaving than did the unsteamed yarn, used 18.77% less time, and yielded 14.81% longer fabric.

305

### The use of tannin as mordant on dyeing silk fabric with dye from tropical almond leaves

Lead author	<b>Sarunya Kasembunyakorn</b> (Kasetsart University)	Thailand
Co-authors	<b>Wallop Arirob</b> (Kasetsart University) <b>Pornsuda Mouchai</b> (Kasetsart University)	

This study focuses on colour values and colourfastness of silk fabric dyeing with dye from tropical almond leaves and tannin as mordant. The four different methods of dyeing with mordant yielded the colour values which were significantly different at 0.5 level. The lightness ( $L^*$ ) values were 58.65–64.11; the red-green ( $a^*$ ) values were 3.76–4.85; the yellow-blue ( $b^*$ ) values were 33.16–38.64; the chroma ( $C^*$ ) values were 33.43–38.83 and hue angle ( $h^*$ ) values were 81.70°–84.44°. The colour obtained was semi-bright dark green-yellow. The result of the analysis of variation of  $dE^*$  values of colour change indicated that  $dE^*$  values were significantly different at .05 level but  $dE^*$  values of colour change were not significantly different at .05 level. The colourfastness was ranged from a very good level to a superlative level. The results of this study showed that the use of tannin before and after dyeing provided a very good level of colourfastness ( $dE^*$  2.49; colourfastness level 4). It is, therefore, recommended that the use of tannin as mordant can improve the quality of silk dyeing with natural dye.

631

### Shade development and fastness improvement through application of a mixture of natural dyes (eucalyptus bark and red sandalwood) on silk

Lead author	<b>Deepali Singhee</b> (JD Birla Institute)	India
Co-authors	<b>Asis Kumar Samanta</b> (University of Calcutta, Institute of Jute Technology) <b>Dipika Baid</b> (JD Birla Institute)	

#### Aim

The study was undertaken with an objective to make the process of natural dyeing cost effective through use of an abundantly and easily available waste product (eucalyptus bark) and to develop newer, uncommon and darker shades along with improved colour fastness properties through application of mixture of compatible natural dyes.

#### Method

Degummed and aluminium sulphate pre-mordanted crepe silk fabric was dyed using aqueous extract of eucalyptus bark by the exhaust process. The effect of varying conditions of extraction and dyeing process variables (time, temperature, pH, MLR and dye concentration) on surface colour strength and colour-related parameters apart from fastness (light, wash, rub and perspiration) was studied and the dyeing condition parameters optimised. Pre-mordanted silk fabric was also dyed with different proportions of the binary mixture of purified extracts of red sandalwood and eucalyptus

bark. Compatibility of the mixture of natural dyes was investigated by commonly known conventional methods of compatibility test of dyes and a newer proposed simplified method for comparative and quantitative rating of compatibility to draw a scientific guideline for obtaining good dyeing results for the variety of colours/shades obtained from mixture dyeing.

### Results

Temperature, pH and dye concentration were found to be the predominating dyeing parameters for eucalyptus bark as indicated by the widely dispersed CDI values. Optimised dyeing conditions for dyeing with aqueous extract of eucalyptus bark was found to be Time – 60 min, Temp – 80°C, pH – 7, MLR – 1:50 and dye concentration (on the basis of weight % of dried solid eucalyptus bark) – 200%. The colour yield of the purified extract of eucalyptus bark and red sandalwood on silk fabrics was found to be higher when the said natural dyes were used in combination than when used alone. Higher K/S was obtained with higher proportion of red sandalwood in the mixture. Both the methods of assessing compatibility of the mixture of dyes, eucalyptus bark and red sandalwood i.e the traditional qualitative method based on plots of K/S vs  $\Delta L$  and  $\Delta C$  vs  $\Delta L$  and the relatively newer quantitative method based on calculation of closeness of CDI values shows that there is no appreciable synergistic interaction between the two dyes and the RCR was found to be 2. Samples dyed with the mixture of the two dyes showed poor wash fastness with respect to change in the depth of colour, which improved slightly on treatment with CTAB, a cationic dye-fixing agent.

### Conclusion

Thus, the two dyes are only fairly compatible.

## Symposium

Room 106	<b>SYMFAM 5 Rhythms and practices in everyday life of families in transition PART 2</b>
Chair	<b>Anu Raijas</b>

## Daily rhythm in transition to parenthood

Presenter	<b>Johanna Varjonen</b> (National Consumer Research Centre, Helsinki, Finland)
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## From drifting to integrated daily living: 'sequence method' as an intervention tool

Presenter	<b>Pirjo Korvela</b> (University of Helsinki)
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## Co-configuration for constructing daily life

Presenter	<b>Marja Saarilahti</b> (University of Helsinki)
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## The domestic heartbeat: towards joint or divergent rhythms in the lives of adult students and their families

Presenter	<b>Henna Heinila</b> (Haaga-Helia University of Applied Sciences, Helsinki)
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Discussant	<b>Kaija Turkki</b> (University of Helsinki)
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This research project focuses on studying the changes in the rhythms and practices of everyday life during critical transitional phases of family life. The project has three analytical levels: 1. the societal level in which collective rhythms and historical analysis of tensions in the rhythms are studied; 2. the family level, in which the creation of rhythms is investigated; and 3. the personal level in which the meanings of rhythms and the practices connected to them are studied. The research project is based on complementary sociocultural and phenomenological approaches. The symposium is divided into two sessions.

PART 2 The second session of this symposium focuses on analysing daily living and rhythms from the perspective of elderly and family interventions. Varjonen and Aalto examine daily rhythm in transition to retirement and explore how men and women spend their days after retirement compared to people still actively in paid work. Analysis focuses on productive activities (unpaid and volunteer work) and rest/recreational activities of persons aged 55–64 years. Changes of daily practices over a longer period of time and with reference to societal developments are also examined. The analysis is based on nationally representative time-use data from 1979 and 2009. Saarilahti, Sekki and Korvela study the sequence method in changing daily living and rhythm of families. The aim of this study is to analyse how families and households construct their daily practices, rhythm and the sequence structure and how sequence method helps families to build up their lost daily rhythm. Korvela and Kosonen study the meaning of social relations in drifting and balanced daily living. Heinilä researches joint or divergent rhythms in the lives of adult students and their families. The study focuses on the changes in the rhythms of everyday life during the critical transitional phase of the adult student's life: combining work, study and family. The purpose is to explore how the changes in daily rhythms are connected to the wellbeing of individuals and families. The epistemological basis of the study is phenomenological inquiry. Discussant professor Turkki reflects and frame this Finnish study on daily rhythms for home economics education.

## Workshop

Room 103	<b>WS INT International collaboration</b>	
Chair	<b>Leanne Compton</b>	

159	<b>Personal interest and potential area of study in textiles</b>	
Lead author	<b>Gabriella Verstraeten</b> (Thomas Carr College)	Australia

My personal interest and potential area of study is in textiles. I would like to put forward my personal interest in studying, researching, recording and collecting indigenous examples of freehand machine embroidery within the cultural context that they are connected to and examining the contemporary influences in terms of design and materials that influence them, with specific reference to Mexico and Guatemala. I would like to meet with any one from these countries who also has an interest in these traditional crafts or may have information on them.

422	<b>Hospital food: Economical and nutritional sense of diet meals</b>	
Lead author	<b>Franziska Honegger</b> (Zurich University of Applied Sciences, Institute for Facility Management)	Switzerland
Co-author	<b>Susanne Hofer</b> (Zurich University of Applied Sciences)	

### Research background

Swiss hospitals need to analyse their processes in order to meet a tightening economic environment. Within the support processes, food provision consumes a significant amount of resources. Hospitals offer their patients a broad range of different diet meals. Their number varies between 30 and 85 and the definition of diet is diversely outlined by the hospitals as there are no defined standards. With a share of 20%–60% of the total food production, administered diets generate a lot of the production cost and need production space. Research has shown that there is efficiency potential in the reduction of costly diets as their use is questioned due to inpatients' decreasing average length of stay. And standards need to be defined.

### Research topic

How many different diets do hospitals have to provide in order to meet economical and nutritional demands?

### Aim and potential benefits of international collaboration

We seek for international collaboration to exchange expertise in the area of hospital food. This enables us to question the topic from different perspectives. The benefit is knowledge expansion from different approaches and challenges around hospital food provision.

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## Writing for teachers: Innovative ideas, visions and researches for renewing home economics teaching

Lead author	<b>Hanna Kuusisaari</b> (University of Helsinki)	Finland
Co-author	<b>Leena Kayhko</b> (University of Helsinki)	

In order to develop thinking and planning skills of home economics teachers, and create new futures for home economics as a school subject in Finland, we have started a book project. Our purpose with the book project is to provide in-service material for home economics teachers. The project brings together teachers, students and researchers into a collaborative writing process. A starting point for designing this book project was the lack of wide-perspective in-service material for teachers. The need and wish for getting scientific material for promoting thinking initially came from the teachers working on secondary and upper-secondary school levels.

### Aim

The aim of the book project is to support the wide perspective of home economics education. We focus especially on developing non-food related contents. The book consists of writers' theoretical based articles which include a strong development view and personal insights.

### Focus

The guiding questions for writing are: 1. What kind of home economics teaching and learning would and should be in the future?; 2. How could home economics be taught by forgetting and letting go of current structures, thoughts, pedagogy and teaching methods? The writings are supposed to question the possibilities, both possibilities of teaching methods and contents, of home economics as a subject which influences in individuals' everyday life as well as society and economics at societal level.

### Benefits of international collaboration

In the International Collaboration session we will outline the ongoing project and introduce the in-service material produced to date. We want to bring our material to the international conversation and possibly find international professionals who would like to contribute to the content of the book. We would like to test if this kind of book is interesting and relevant in a international forum: would it be beneficial to translate the book, or are there interested colleagues who would like to write articles for completing the book for international readers.

593

## Study of terms and expressions in cooking methods

Lead author	<b>Nami Fukutome</b> (Ochanomizu University)	Japan
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### Focus

The author's research focuses on comparison and correspondence of cooking method terms and expressions across languages. A study already reported in ARAHE journal 2011, vol 18, examined terms and expressions for the water heating process in English, Japanese and Chinese, and was conducted in the USA, Japan and Taiwan. As the next step, I would like to research terms and expressions:

1. In other languages and countries for the water heating process using the same method as in the above-mentioned research, which involved taking questionnaires while showing a sample video. Through this method, specific water temperatures were able to be corresponded to each term and expression.
2. Pertaining to cooking processes other than water heating, such as 'how to cut ingredients' and analyse the correspondence among them. I intend to show wax models of vegetables and correspond terms and expressions with objective numerical values by measuring thickness and length. In this study, we would draw a clear distinction, if it exists, for example, between 'julienne' and 'thin strips', or between 'julienne' and a particular Chinese word with similar meaning, through questionnaires and corresponding evaluation using samples.

### Benefits of international collaboration

I am looking for collaborators to join in the above-mentioned research. The proposed study would be of great benefit to culinary education in any country with its collection and analysis of shared information. I am also planning to publish multi-lingual dictionaries on cooking methods and establish a database in the future. I am looking forward to meeting potential collaborators who share this dream with me and are keen to cooperate across borders.

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## Global project of the Home Economics Institute of Australia

Lead author	<b>Marilyn Yates</b> (Home Economics Institute of Australia)	Australia
Co-authors	<b>Dr Janet Reynolds</b> (Home Economics Institute of Australia) <b>Leanne Compton</b> (Home Economics Institute of Australia)	

The Home Economics Institute of Australia is investigating contemporary opportunities to expand the range of support it provides home economics teachers. The advances in digital communication tools provide opportunities for alternative approaches to classroom teaching and learning and options regarding the nature of the support made available to teachers. HEIA is researching an effective way to use the internet so that teachers and students can collaborate on authentic projects. However, an important question to explore is whether global, collaborative projects provide interesting and challenging activities and enhance student learning. Additionally, it is critical to investigate whether teachers will find them manageable given student access to computers, teacher familiarity with software and digital tools and the time available.

### Focus

A range of issues that need to be addressed include the following:

- Whether home economics teachers see a need for such projects
- Relevant contexts for global collaborative projects
- The software and digital tools to use to create and support projects
- The optimum number of schools and students to be involved nationally and internationally on an individual project
- Effective professional association management of a global project
- The educational value of global, collaborative projects
- The positive advantages to teachers that flow from global projects
- What is required to make collaborative projects sustainable

### Benefits of international collaboration

HEIA is looking for teachers from Australia and other countries who have classroom access to the internet and are enthusiastic about piloting a global home economics-related project.

636

## Small and medium enterprise development for women in textiles, apparel and furnishing

Lead author	<b>Ela Dedhia</b> (Nirmala Niketan College of Home Science)	India
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### Aim

To support small and medium enterprises owned by women involved in textiles, apparel and furnishing.

### Method

Survey for existing capacities of women owning enterprises in various areas of textiles and apparel. Give them various exposures through training, field visits, talks etc. Before and after study of scale of enterprise.

### Benefits of international collaboration

To share database derived through similar survey conducted in other countries. Exchange online resources and other resources as and when feasible such as training, design development etc. Compare the before and after scale of enterprise for analysis and further growth.



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**Global wellbeing of new consumers**

Lead author

**Sophia Anong** (University of Georgia)

United States

Mobile phones have revolutionised the way marginalised people are brought to banking for the first time in developing countries. Widespread mobile cell phone use has led to a surge in transformational mobile banking of previously unbanked subscribers, and cuts across several stakeholders such as telecommunication providers, payment or cash agents, and retailers. Financial inclusion is important as it facilitates affordable regular transactions, saving, access to credit, and long-term wealth accumulation. Access to financial services is crucial to economic development and poverty alleviation. Ten per cent of current mobile money customers worldwide are low-literate, low-income, and not as experienced or knowledgeable about their rights as consumers. New consumers are introduced to the marketplace continuously in developing and developed countries through innovative services such as mobile banking that capture consumers who had previously been marginalised and tend to lack knowledge, financial resources, and experience on how to navigate the marketplace.

**Focus**

The purpose is to assemble an international team of experts in teaching, research, community empowerment to focus on: 1. tracking innovative services that target new consumers; 2. conducting ground-breaking research to fully explore and understand the experiences of new consumers in constantly evolving marketplaces in both the developed and developing world; 3. developing innovative education and community outreach interventions that empower new consumers; and 4. making specific recommendations for practical policy interventions that seek to educate and protect new consumers.

**Benefits of international collaboration**

This collaboration is particularly important for developing countries where consumer-focused supply of goods and services, consumer education, and consumer protection policy and enforcement lag behind the relatively consumer-oriented developed world. The collaboration will foster an exchange of expertise and lessons to increase awareness of consumer rights among consumers, service providers and practitioners, educators, researchers and policymakers. Competitive grants and sponsorships will be sought to support the activities outlined in the purpose and dissemination of research findings and program outcomes.

## Concurrent sessions

Room 101	<b>BUS 1 Enterprise and entrepreneurship in home economics education</b>	
Chair	<b>Ruth Gibbons</b>	

51	<b>Entrepreneurial learning</b>	
Lead author	<b>Eldbjorg Schon</b> (Akershus University)	Norway
Co-author	<b>Eva Janson</b> (Swedish Teachers Union – Lararforbundet)	

Entrepreneurship has long been used in Norwegian schools, through primary and secondary school. It is also used in several teacher-training programs. It appears that entrepreneurship has more advantages than just to provide an introduction to the method. We live in a time where more people need to obtain their livelihood due to changes in society in general. It appears, among other things, that girls who have had this as a subject in high school have greater self confidence and more easily become entrepreneurs themselves, so it is important that teachers know the method well. Examples will be given of how entrepreneurship is used in Norway today, but the emphasis will be on how it is used in vocational teacher education. I will give examples of this by answering the following questions:

- How is entrepreneurship used in elementary school?
- How is entrepreneurship used in middle school?
- How is entrepreneurship used in high school?
- How is entrepreneurship used in vocational teacher education?
- Why is entrepreneurship important in the future?

187	<b>CIPPA model case study: Korat food business – Kin Khao Kham</b>	
Lead author	<b>Watanaporn Chokratanchai</b> (Nakhon Ratchasima Rajabhat University)	Thailand

**Aim**

This study aimed to have students participate in teaching and learning by using the CIPPA model and the Business of Korat Food 'Kin Khao Kham' as a case study. The objective was for students to participate in the learning process by using 'Kin Khao Kham', a local cultural dinner party, as a case study.

**Method**

The seven steps of the CIPPA model used in this study were: reviewing background knowledge; exploring new knowledge; studying new knowledge and connecting new knowledge with background knowledge; sharing knowledge in groups; drawing conclusions; exhibiting the work; and applying the knowledge. There were 37 entrepreneurs and educators from many organisations and 90 undergraduate students participating in brainstorming, planning and organising Business of Korat Food activities. Teaching and learning was evaluated by the students' performance and their satisfaction before and after doing the activities and the participants' questionnaires.

**Results**

It was found that 98.8 per cent of the entrepreneurs and local people supported the idea of the integration of teaching and learning into running a business. When using the CIPPA model in teaching and learning by using Business of Korat Food 'Kin Khao Kham' as a case study, the students learnt about Korat food, they could plan the party, cook food, arrange the food and serve the food in a local cultural style. Ninety-five per cent of the students were more satisfied after studying than before studying at the level of statistical significant difference at 0.05. The students identified that this method made them participate in teaching and learning at a high level and also that it was student-centred. Having the students participate in every step gave them direct experience, enabling them to think creatively, learn how to solve the problem faced and apply solution to the actual business.

### Conclusion

Using the CIPPA model in teaching and learning, the students practised cooking, serving food and were encouraged to think creatively. The results of this study led to the creation of a new subject for home economics. The food service which included cultural styles could add more value for food service, preserve local culture and make Korat food well known to promote tourist attractions in Nakhon Ratchasima.

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## The result of 4 TPE training model testing: A model for development of entrepreneurship in food business

Lead author

**Surachai Jewcharoensakul** (Kasetsart University)

Thailand

### Aim

In 2009 there was a serious economic crisis in Thailand. It caused more than one million people or 28% of the workforce to lose their job (National Statistical Office 2010). The government of Thailand launched a project to encourage people to get busy and seek a new job, under the name of 'Tonkla-Archeep', meaning to create new entrepreneurs with vocational training. It was found that an effect of the economic crisis in 1997 was that a large number of unemployed persons had run food stands or become food vendors, because a food business was easy to start up, needed low capital and had relatively little need of much knowledge (Sanitation and Environment Division 2007). Thus, this research was carried out for two reasons: it was to implement the studied model and to support the government project.

### Method

This was experimental research, conducted only among the respondents who participated with the Tonkla-Archeep Thai government project; 117 participants were selected by the project administrators. Cooking training courses were undertaken by three groups. The 4 TPE model was implemented, conducted in three stages: 1. Before training, to ensure the right target population was selected through training needs assessment, testing knowledge and attitude, and availability for the 22-day timeframe of participation; 2. During the 22-day process i.e. training in theory of food production and food management; practice in cooking; presentations on thinking skills; evaluation by observation of working behaviour and food testing; and surveying participant satisfaction with the course and 3. The incubation process, when training to become an entrepreneur was done. Data category, frequency, percentage, mean and standard deviation were utilised as the statistical tools for data analysis.

### Results

The results of the study revealed that the participants of three groups consisted of the following: group I (n = 42; 62.0% female); group II (n = 44; 54.5% female) and group III (n = 31; 51.6% male). The average age was 37.6 years; 22 years old was the youngest and 54 years old was the oldest. Sixty-seven per cent had graduated with a bachelor degree. During the 22-days training process, all of them participated more than 80% of the timeframe. They were able to cook fast and the food tasted right for sale, after adjusting during the class. Everyone passed the 60% required for the writing examination. The practicum of food management, cooking skills and food presentation was successful, with products all suitable for sale. All participants were satisfied with the training course to a 'high' and 'very high' degree. During the incubation process, only five (4.3%) participants were successful. The outcome of renting space and running a restaurant business in Bangkok was not successful. It ran for 11 months then closed, because of economic crisis in 2010 and some of the participants had given up, because the income was not enough to keep them interested.

### Conclusion

Constructing the training program was not a problem, but to create or to appoint an entrepreneur was complicated. It was necessary to have particular characteristics for entrepreneurship, such as a strong dream, to work hard and fast, to be careful during all steps and not to complain. The approach to creating entrepreneurship was challenged.

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### Incorporating enterprise in home economics education: Experiences of the University of the South Pacific

Lead author **Vulori Sarai** (University of the South Pacific)

Fiji

Home Economics is one of the strands under the TVET program at the School of Education of the University of the South Pacific (USP). It was rationalised and redesigned because of the restructuring process taking place at the USP since 2008. The home economics program has been running since the establishment of the USP, with the focus mainly on teacher training, teaching content in home management, food and nutrition and clothing and textiles. The recent global crisis, increase in fuel prices and other global issues have had a direct impact on the future, relevance and the continuity of the training of the home economics teachers of the region at the University of the South Pacific. Thus the need to equip teachers to be innovative, creative and be able to generate income through projects in schools. The process of the development of enterprising attitude and skills and to engage in entrepreneurial activities has been a challenging experience given the varied backgrounds and societies the students come from. This paper will firstly highlight the creation of the enterprising environment for learning in the home economics courses and, secondly, the activities that were targeted as part of the students' projects. The paper will also highlight that incorporating enterprise into the home economics curriculum is a way of teaching and learning and not another alternative curriculum.

Room  
102

### TEX 5 Selected issues in design and textiles: culture meets technology

Chair **Jill Camilleri**

42

### Photographic analysis to test stereotypes

Lead author **Usha Chowdhary** (Central Michigan University)

United States

History refers to series of frozen acts of a given time that can be explained contextually. Culture refers to the way of doing things within a group of people. Fashion refers to the wedding between time and style. Artifacts like dress and apparel reflect the nearest environment of people and can serve as excellent means to understand culture and fashion theories. The purpose of the reported work was to test if stereotypes used by foreigners upheld regarding a traditional outfit through qualitative analysis. It was hypothesized that traditional articles of apparel used by the citizens of developing or emerging societies do not change or reflect fashion changes. The analysis included thirty eight apparel photos from Chowdhary (2011) owned by single individual from 1987–1998. This same individual's collection was chosen to control for the inter-individual preferences. The chosen outfit is reportedly perceived by the foreigners as a traditional garment that seemingly reflects very little variability of design and styles over time. The outfits were analysed to determine the subtle differences that are more evident to native people than outsiders. The details included: colouration techniques used, design details, draping method, embellishment technique, fabric construction, fibre content and styles. Findings revealed that the photographs represented several variations for the selected categories. The hypothesis that traditional articles of apparel used by the citizens of developing or emerging societies are similar in nature was refuted. Several differences were observed in draping of scarves, construction of fabrics, colours and embellishments used in the selected design that could be more obvious to the native people than the outsiders. Both dyed and printed fabrics were used. Embellishments included embroidery, patchwork, mirror work, weaving differences and design details. The final paper will include the actual items to provide visual cues for the reader and results will be provided in a tabular form. The work has implications for future studies. Concepts and theories such as acculturation, aesthetics in apparel, changing styles, repeating history, rites of passage and symbolic interaction can also be tested by examining photographs.

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## Male perception of an ideal body figure for a Swazi woman

Lead author	<b>Pinkie Zwane</b> (University of Swaziland)	Swaziland
Co-author	<b>Londiwe Mngomezulu</b> (University of Swaziland)	

### Aim

There is no universally acceptable ideal body figure given the nuances in cultures and what people in each culture perceive as appealing. The purpose of the study was to investigate male views of an ideal body figure for a Swazi woman.

### Method

The study was descriptive in nature, where a modified Delphi technique was used in developing the instrument used for data collection. A purposive sample was selected from a population of 320 males at the University of Swaziland, Luyengo Campus that only has the Faculty of Agriculture. The sample size was 18 per cent of the male population on campus, which gave a total sample size of 60 males. A convenience sample of only third and fourth year male students were further selected to participate in the study. The first phase of data collection had five female body type pictures which were the: hourglass, inverted triangle, triangle rectangle and oval shapes. Reliability and validity of instrument were determined prior to data collection. Qualitative data were analysed into categories, and quantitative data were analysed using means, standard deviation and correlation.

### Results

The body figure type most preferred by males was the triangle shape or pear shaped. It was further shown that as much as males consider facial appearance in a female when judging beauty, that they focused more on the personality of the female. There was not a significant correlation between the males' perceptions and their demographic variables.

### Conclusion

Male students at the Luyengo Campus, at the University of Swaziland perceived a triangular shaped body of a female as being ideal, rather than the western society that perceives the hourglass as ideal.

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## Application of dye extracted from Neem (*Azadirachta indica*) bark and leaves on silk fabric and evaluation of anti-microbial properties of Neem dye

Lead author	<b>Inderpal Rai</b> (JNV University)	India
Co-authors	<b>Sabra Qureshi</b> (JNV University) <b>Sandeepa Kumawat</b> (JNV University)	

### Aim

For thousands of years the beneficial properties of Neem (*Azadirachta indica* A. Juss) have been recognised in the Indian tradition. Each part of the neem tree has some medicinal property. The importance of the neem tree has been recognised by the US National Academy of Sciences, which published a report in 1992 entitled 'Neem – a tree for solving global problems'. India has a long golden era of dyeing textile with vegetable dyes. The art of dyeing and printing has played an important role in adding beauty to the textile world. Vegetable dyes are unsophisticated and harmonise with nature. The use of natural dyes offers no pollution problem, since toxic substances are not involved in their production. The natural dyes are eco-friendly and naturally dyed materials have good resistance to bacterial infection and hence are safe for body contact. The aims of this study were to: 1. study the dyeing properties of Neem (*Azadirachta indica*) leaves and bark on silk fabrics; 2. study the effect of mordant treatment on dyes obtained from from of Neem leaves and bark; 3. study the colour fastness of dyed fabrics; 4. determine the anti-microbial properties of the dyes obtained from Neem leaves and bark.

### Method

Neem leaves and bark were selected as a dye source for this study. One hundred per cent pure plain weave silk fabric was used. Dyes were extracted in alkaline and natural medium. Extracted natural dyes were used with four different mordants - alum, copper sulphate, harda (myrobolan) and ferrous sulphate. Colour fastness properties (light, washing, perspiration and crocking), and anti microbial properties were also studied on these samples.

### Results

Dye obtained from bark and leaves gave different shades of light brown, cream, golden yellow, light yellow, golden brown, dark brown, pinkish brown, jasmine cream, butter yellow etc with different mordants. All silk samples pre mordanted with different concentrations showed good to excellent results for washing, dry rubbing, and sunlight fastness. Samples showed fair to excellent results for wet rubbing and perspiration fastness. The natural anti-bacterial property of Neem bark and leaves was observed in the dyed silk samples.

### Conclusion

It can be concluded through the findings of the study that Neem leaves and bark can be effectively used to dye silk fabric. The fabric dyed with Neem bark and leaf dye has natural anti-bacterial properties and therefore will be beneficial for persons suffering from skin allergies.

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## Transition of traditional textiles in development: Indigo-dyed cotton in Laos

Lead author

**Eriko Kawaguchi** (Japan Women's University)

Japan

### Aim

To demonstrate a transitional stage for traditional textiles after they have been developed to be commercial products. As traditional textiles are often used as sources of income, the status of traditional clothing is rapidly changing. This study focuses on the development of the traditional indigo cotton of the Tai people in Laos.

### Method

Field surveys were conducted on the Vientiane and Luang Prabang provinces in Laos to determine the traditional process of indigo dyeing and the present status of indigo-coloured textiles on the market. Samples were collected of traditional indigo-dyed textiles (A) and four different indigo-coloured textiles (B) in the market. Comparisons between (A) and (B) were made through the test of colour fastness to washing, perspiration, rubbing and light. Fibre discrimination tests were carried out to distinguish fibres used in (A) and (B). The wavelength of extraction liquid of indigo stuff from (A) and (B) were analysed using a spectral photometer and high-performance liquid chromatogram (HPLC) to verify the presence of indigo components. A literature review was carried out.

### Results

The present indigo-coloured textiles of the Tai people in Laos are inferior in quality by comparison with traditional indigo-dyed cotton. With the analysis under spectral photometer and HPLC, only one textile among (B) was identified to be dyed with real indigo and the other three were dyed with indigotic chemical dyestuff. 100% polyester yarn was woven as the warp of one textile among (B), even though all were marketed as cotton textiles. As a result of the colour-fastness test, the traditional indigo-dyed cotton (A) is faster than indigotic chemical-dyed textiles (B), especially to washing, perspiration and light. In fastness to rubbing, (A) as well as (B) showed moderate performance. Since the colour-fastness to washing, perspiration and light are functional factors for the people living in hot and humid conditions, indigo-dyed cotton has been environment-compatible clothing in Laos.

### Conclusion

Traditional textile carries a meaning of functionality for wearing. However, its meaning is easily ignored in adaptation from environmentally-applied clothing for local people to marketable textile for customers. The indigo-coloured cotton (B) is completely different from the traditional indigo-dyed cotton in quality. It is a kind of variation in development of traditional textile.

Room 104	<b>EDU 10 Strategies and models for improving educational outcomes</b>
Chair	<b>Joanne Pearson</b>

101	<b>The effect of the enneagram on psychological wellbeing and unconditional self-acceptance of young adults</b>	
Lead author	<b>Jeanne Godin</b> (Universite de Moncton)	Canada

#### Aim

This quasi-experimental study investigated whether the knowledge of the Enneagram system affects unconditional self-acceptance and psychological wellbeing of university students who have been attending university for at least a year. It also measured the correlation between the total scores on the psychological well-being instrument and unconditional self-acceptance questionnaire.

#### Method

A two-group design was employed, wherein a control and an experimental group completed a pre- and two post-tests on psychological well-being and unconditional self-acceptance. The randomly selected experimental group received three weekly educational sessions on the Enneagram system.

#### Results

Results show that the knowledge of the Enneagram personality system does not have a significant effect on psychological well-being. Due to a small sample size and violation of the assumptions required to conduct an ANCOVA it was not possible to determine if the knowledge of the Enneagram affects unconditional self-acceptance. Findings indicate also a low to moderate positive correlation between the unconditional self-acceptance questionnaire (Chamberlain and Haaga 2001a) and Ryff Psychological Well-Being Scale (1989).

#### Conclusion

Recommendations include using a larger sample, changing the number of educational sessions or their format, and using an additional test to measure irrational thoughts. Therefore, in a future study it may be favourable that the intervention be an integral part of a family and consumer sciences university course. Finally, despite the results of this study there are some indicators that suggest the Enneagram system be taught in schools and university to help prepare students to be more conscious of how marketing agencies may manipulate such knowledge to their advantage.

289	<b>Development of ESD model by the method of PIP for K–12 and university</b>	
Lead author	<b>Setsuko Nakayama</b> (Chiba University)	Japan
Co-author	<b>Yoko Ito</b> (Chiba University)	

#### Aim

In 2002 the United Nations General Assembly declared the decade from 2005 to 2014 to be a Decade of Education for Sustainable Development (DESD). Since then, UN member nations have promoted ESD at all levels in their own countries. As the country proposing DESD, Japan has set to work promoting ESD with the cooperation of ESD-related international organisations, government agencies, NGOs and grassroots organisations. Currently, the government's new curriculum guidelines emphasise sustainable development and ESD-content has been introduced into Japan's compulsory education. Japan has accumulated a wide range of knowhow and experience regarding the implementation of ESD as well as insight into tasks that still need to be tackled. Thus, Japan is considered a key player in the promotion of ESD practices, particularly in the Asia-Pacific region. The purpose of this study is to develop a new ESD model and to consider the potential of this model in order to affect a reorientation of current education. To attain this purpose, Projection Images by Photography (PIP) was adopted for understanding of children's sustainable developmental processes for development of the model.

### Methods

The participants consisted of 25 kindergarten pupils, 32 second graders, 21 fifth graders, 22 eighth graders, 41 eleventh graders and 140 students in sophomore year (second year) in college. Firstly, they took two series of photos on the theme 'Sustainable Development' using digital cameras. Next, they shared their photos and their reasons for choosing the photos. Then, they discussed how they related the issues of sustainability to ESD practices. Finally, they were asked to make their own comments on what they feel and think about after the activities. The effectiveness of PIP was analysed.

### Results and conclusion

In analysing Projection Images by Photography, younger children tend to have their images of 'Sustainable Development' in their surroundings and close to their daily lives, while older children have their images in materialistic attachments or high-tech applications. Although children could not express their own thoughts and awareness of sustainability very well, we have proved that the PIP was useful to understand children's thoughts and awareness of sustainability more explicitly. Detailed interpretation and application of the ESD mode for the different stages of K-12 have to be considered. The intent of the ESD model is for practising schools to serve as stepping stones for achieving a sustainable society through community collaboration.

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## Extension education and home economics: Women's role in advisory work in Finland

Lead author

**Leena Savisalo** (IFHE program committee chair, Eastern European Outreach)

Finland

The role of women in extension education in Finland has not been accepted for very long. The inclusion of food security as part of the lifelong learning program of extension education is a new phenomenon. Basic education in agriculture started in 1781 when Finland was part of Sweden. The education of girls started in 1860 when Finland was part of Russian empire. First, common elementary schools were founded. Home economics education discussed but not yet accepted for teaching. 'The home is a private sector with intimacy and without scientific background' (Hegel, Levander). The school of home economics for girls started in 1875. The purpose was to teach home economic skills to poor girls to enable them to become professional domestic servants and housemaids. The purpose of home economics has changed during the past 150 years. From women's point of view, one role of extension education is to promote basic home economics education in the elementary schools again. Since the 1970s education on the everyday life skills has diminished to 80 per cent of the need. IFHE has found the need for education in home economics worldwide. In Finland not only women are stressing the importance of food security but also those working in Extension Education throughout the country and in the Faculty of Education at the University of Helsinki. There are three basic women's extension organisations in Finland. Finnish speaking Martta and Swedish speaking Marthas and Country women's organisation, which are take care of extension education of women in food-related areas. The highest level of household economics started in 1946 at the University of Helsinki. The MSc degree has continued to doctorate of science level and to the high level of extension education in innovations to practice. The continuing extension of education is not through the universities in Finland. The need for higher education and research in home economics needs to be realised and communicated. Home economics is a part of food security and the research shows that extending the skills of growing the 'material' for food requires lifelong learning and education (Alford 1963). With increasing floods, droughts, storms, earthquakes, tsunamis and other disasters of the nature, people's ability to survive and thrive is under threat. The sustainable development of agriculture is always needed.

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## A call for a comprehensive and effective food safety education program in the school curricula in Brunei Darussalam

Lead author

**Ampuan Norsarjanawati Ampuan Hj Said** (Ministry of Education, Brunei Darussalam/RMIT University)

Brunei

Co-author **Dr Philip Button** (RMIT University)

Food can be mishandled at any stage in food production, leading to a significant amount of foodborne diseases. It is often thought that microbial foodborne diseases can be prevented if food safety principles are understood and practised through the entire food chain from production till consumption. Increasing numbers of food contamination cases in domestic kitchens indicated that consumers still made wrong decisions on food consumption, preparation and storage, even if they had suitable food safety knowledge. For this reason, a domestic food safety survey was carried



out at secondary schools in Brunei Darussalam to assess the food safety knowledge and food safety attitudes of young adolescents in relation to their age and gender differences. A total of 216 students participated; 88 were males and 128 females. Participants were categorized into 11–13 years (n=57), 14–16 years (n=107) and 17–20 years (n=52). The results have shown that there were no significant differences on the level of food safety knowledge between male and female respondents; however, there were significant differences between the three age groups, where the mean scores of the older age groups were higher than the younger ones. The levels of food safety attitudes have shown significant differences between male and female respondents, with females having higher mean scores in most of the food safety attitudes. Likewise, there were significant differences on the levels of food safety attitudes between the three age groups, where the mean scores in the older age groups were higher than the younger ones. Overall, it appeared to be that the food safety knowledge and the food safety attitudes of the youths in Brunei Darussalam were inadequate and unsuitable. This has heightened the importance of food safety education in terms of basic rules for preparation, cooking and storing of food. As a result a comprehensive and effective food safety education program should be developed and incorporated into the school curriculum in order to reduce the incidence of foodborne disease in that country.

Room  
105**FAM 4 Challenges for families: perspectives from around the world**

Chair

**Donna Pendergast**

231

**Acculturation and everyday activities in immigrant Afghan households**

Lead author

**Helena Valkeapaa** (Itä-Suomen University)

Finland

**Aim**

This study examined acculturation into Finnish society and the degree of integration through acculturation. The aim of this study was to describe immigrant-Afghan household activities, such as child rearing, family meals and living. The researcher was also interested in the interactions between immigrant Afghans and Finnish society. The specific aim was to describe the process of acculturation taking place, including the social and cultural changes associated with it.

**Method**

A theoretical framework, arising from the work of Bubolz & Sontag's (1980) human ecology theory and Berry's (1980) acculturation attitudes model, was employed. A total of 264 immigrant Afghans representing 12 per cent of Afghans living in Finland were surveyed. Questionnaire data was collected with an interpreter available on all occasions in nine geographic dialects. Data was analysed using the SPSS 17 statistical package for Windows.

**Results and conclusion**

In the sphere of household activities, the acculturation process among immigrant Afghans varied between integration and separation. Separation was indicated by no change or the continuation of activities similar to those found in the culture of origin. This was evident in child rearing, traditional activities and forms of interaction. Integration was represented by a clear change toward activities typical of Finnish culture. This was to some extent seen in food economy and living. Assimilation, however, had not taken place in other spheres of household activities. A significant finding in this study was that 70 per cent of the respondents wished for more contact with the host society. Also, participation in work-communities was seen to be important by 69 per cent of Afghans, which indicates that most Afghans wish to integrate into Finnish society. In the Afghan family, mothers continue to carry the responsibility for child rearing and household activities. Upbringing is authoritarian, with the expectation that children show respect for their parents. Dating between Afghan daughters and boys of a different religion is prohibited, whereas this is less strictly adhered to in the case of sons. Sixty-four per cent of the respondents believe that traditional gender role divisions discriminate against women and girls.

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## Study and development of a model to promote family security in Thailand

Lead author	<b>Chittinun Tejagupta</b> (Sukhothai Thammathirat Open University)	Thailand
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### Aim

The objectives of this study were: to survey the circumstances of Thai family stability; to investigate policies, measures, mechanisms and models promoting family security both in Thailand and abroad; and to explore and propose a model for enhancing family security in order to promote a better quality of life and strong family in accordance with sufficiency economy philosophy.

### Methods

The sample was 7684 families residing in urban and rural areas in Bangkok, Samutprakan, Chonburi, Nakhonsawan, Chiangmai, Khonkaen, Ubon Ratchathani, and Nakhon Si Thammarat. Research instruments were questionnaires constructed by the researchers based on the Human Development Report of UNDP and suggestions from experts in the related areas. The questionnaires consisted of two parts, family demographic information and family security data. Data collection included secondary data such as relevant statistics, research articles and related information from books and academic papers as well as primary data from surveys in four regions of Thailand. Frequencies and percentages were used to analyse quantitative data and content analysis was used to analyse qualitative data.

### Results

Results showed that the majority of families used services provided by the government according to specified policies and conditions. They also stated that in the future they still want to use family security in eight areas in order of preference as follows: health, education, work life/occupation, incomes, housing and environment, family life and community, communications and mass communications, and participation.

### Conclusion

Regarding policies, measures, mechanisms and patterns in promoting family security in Thailand and abroad, this study found that both are similar to family protection in the form of social protection and social services. However, access and intervention of family services in foreign countries are more concrete than Thailand. For a proposed model to enhance family security in the Thai context, emphasis must be placed on enhancing security in family life and work life as a focal developmental process in order to support strengths within the family in increasing family functioning skills and having occupations in accordance with the needs of the family. In order to empower family life, it is important to promote good relations, positive communication, managerial skills, and adjustment skills. Moreover, they must have morality and earn their living honestly. It is also important that families have other securities, such as housing and good environment, health, education, occupation and income, participation and communication. Moreover, there should be family management consultants to coordinate with relevant agencies and organisations in promoting practical family security.

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## The shaping of mothering: The experience of marriage among migrant women in Korea

Lead author	<b>Jae Yeon Lee</b> (National Youth Policy Institute)	Korea
Co-author	<b>Bongmi Kim</b> (The University of Sydney)	

Despite the increase in multicultural families in Korea, mainly constituted by the arrival of 'marriage migrants' from East Asian countries over the past two decades, research has paid little attention to these women's mothering. Mothering is a form of unpaid care-work performed predominantly by women in many countries. The process of becoming a mother after marriage migration in Korea presents unique challenges in social and cultural integration. First this paper will attempt to identify the unique social and cultural challenges facing these married migrant women in Korea during their mothering periods. The social and cultural displacements relating to the dilemmas of motherhood will be discussed under the following headings: evidence of adaptation to the immigration process; changing perceptions of gender roles and attachment; bicultural conflicts; changing family structure; and social networks. By exploring mothering in the daily life of a multicultural family, this research focuses on how migrant women's social support diversifies mothering practices and positions socio-cultural integration. Unstructured, in-depth interviews with 20 East Asian migrant women who live in rural areas in Korea will be conducted and various kinds of formal or informal documents and data that are relevant to marriage migrants in Korea will be analysed. Secondly, this study will address the ways in which social support displacement has an impact on the dilemmas of motherhood, as evident in

adaptation to the marriage-migration process, changing conceptions of cultural diversity, changing family structure and social networks. Finally, this study will argue that the mothering role of migrant women in Korea is marginalised and/or excluded in the integration of Korean society.

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### Reconceptualising the role of the family in development: Experiences from Botswana, Africa

Lead author	<b>Lois Mberengwa</b> (University of Botswana)	Botswana
Co-author	<b>Tiny Masoloko</b> (University of Botswana)	

The family is increasingly being recognised as a powerful engine of development in many societies around the world including Botswana. The family affects the quality of life of its members and subsequently their performance in the society at large. However, the contribution of the family to social and economic development has been undermined by a wide spectrum of socio-economic challenges, as well as interventions that relegated it to a mere recipient of, rather than a partner in development. Experience suggests that in Botswana, targeted strategies aimed at offsetting the social and economic challenges that confronted families were relentlessly put in place, but in the form of handouts. Such approaches, nevertheless, tended to cripple the family's potential for socio-economic independence and its ability to contribute positively to developmental goals. This paper reviews the strategic role of the family in Botswana's national development as well as shortcomings of some safety-nets through the framework of the Millennium Development Goals, with a view to finding effective ways of enhancing the family's participation in economic and social development. The paper utilises the family strengths perspective to interrogate the family's role and capacity to impact on the achievement of MDGs in Botswana. The paper was informed by secondary data sources in published documents including journal articles and books, and national policy documents. The paper recommends that an appropriate strategy to engender effective contribution of the family in development is through empowerment strategies which enable the family to be a true partner in development.

Room  
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### HEA 5 Exploring health and behaviours of young people

Chair **Suzanne Piscopo**

327

### Young women: their eating behaviours, nutrient intakes and nutritional wellbeing

Lead author	<b>Jennifer McArthur</b> (The University of Sydney)	Australia
Co-authors	<b>Samir Samman</b> (The University of Sydney) <b>Natalie Gough</b> (The University of Sydney)	

#### Aim

To explore the eating patterns, food selections and meal approaches of young women, comparing them to the national benchmarks for health; and to ascertain the behaviours inconsistent with the nutritional wellbeing of these women, thereby identifying objectives for innovative nutrition educators.

#### Method

In Sydney (2008–2009) posters enabled the recruitment of young (18–35 years) tertiary educated women with diverse cultural backgrounds, home environments, nutritional knowledge and practices, who were omnivores and taking no medications or nutritional supplements. During the 12-week study, participants maintained food journals for 21 days, completed food frequency questionnaires and communicated nutrition opinions and food preferences. An emergent mixed methods study design was used collecting quantitative and qualitative data sequentially then independent analyses preceded integration of the data sets. Statistical and data management computer programs were employed. The University of Sydney Human Ethics Review Committee approved this study.

### Results

The women (n=42) were aged  $24.7 \pm 4.2$  years and within the healthy weight range (BMI  $21.5 \pm 2.1$  kg/m<sup>2</sup>). It was reported that little food was purchased as raw food with meal preparation (including microwave reheating) not stated by 60%. Breakfast assessments quantified 11% meals omitted, 26% meals were snacks and 33% were nutritionally incomplete meals. Lunch and dinner were more frequently nutritionally complete (42% and 39% respectively). Considering the five core food groups, only the 'meat, fish, poultry, eggs, nuts and legumes group' median intakes reached the national recommendations. The participants' correct assignments of core foods in their journals were poor with over reporting for all food groups (40%–87%). The proportion of women whose nutrient intake failed to meet the Recommended Daily Intakes (RDI) essential for women of childbearing age was 55% (iron), 38% (folate) and 28% (calcium).

### Conclusion

Meals, patterned through youth as three events interspersed with snacks daily, are either now omitted or lack the coordinated food grouping that historically constitutes a meal. The combination of foods within these meals traditionally provide the nutrients essential for health; however, the participants in this study are having insufficient key nutrient intakes. Contemporary nutrition education strategies should be reviewed to ensure adequate food knowledge and meal preparation skills.

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## Nutritional status and academic performance of adolescent girls in Lagos State, Nigeria

Lead author	<b>Ifeoma Akeredolu</b> (Yaba College of Technology)	Nigeria
Co-authors	<b>Josephine Okafor</b> (Federal Polytechnic) <b>Patricia Mbah</b> (Federal College of Education) <b>Olufemi Osisanya</b> (Yaba College of Technology)	

There is increasing recognition that health and nutrition may contribute to poor school performance. This survey research was designed to examine the nutritional status and academic performance of adolescent girls (12–17 years) and its implication for nutrition education in Shomolu Local Government Area of Lagos State, Nigeria. A sample of 75 adolescent girls were selected randomly from three secondary schools. Five research questions guided the study. Data was collected using 24-hour dietary recall. A structured questionnaire was used in gathering information. The data collected were analysed using mean, simple percentage and correlation. The results of the analysis showed: the majority of the adolescent girls have good nutritional knowledge; 42.6% were underweight; 10.7% were obese; 14.7% were overweight; 14.7% had normal BMI. Their intake of protein was 21.9gms (47.6% of DRI), calcium was 430gms (33.1% of DRI), iron was 4.1mg (27.3% of DRI), while energy intake was 2553.3kcal (116.0% of DRI). There was a positive relationship between the nutritional status and academic performance of adolescent girls. Based on these findings, it was concluded that adolescent girls should be educated on the nutritional values of different types of food items, the amount of nutrients needed and proportion for each meal and also informed on the consequences of low nutrient intake on their academic performance.

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## Dietary behaviour among young adults in Japan in relation to family meal experiences in childhood

Lead author	<b>Kinuyo Kurokawa</b> (Naruto University of Education)	Japan
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### Aim

With the increase of lifestyle-related illness such as high-blood pressure, heart disease, diabetes, and obesity among adults in Japan, much attention has been directed to dietary habits. For adults, however, dietary habits are difficult to change in a very short period of time. Therefore, it is important to learn proper diet in childhood. In this context, family meals in childhood are very important. This paper focuses on family meal experiences in childhood as the basis of dietary habits and behaviour. The purpose of this paper is to examine how family meal experiences in childhood are associated with dietary behaviour later in young adulthood.

### Method

A questionnaire survey was conducted in November 2009. Participants were 585 young adults, who were in two different universities in Japan. The questionnaire consisted of two parts. The first part asked about their family meal experiences when they were 5th and 6th graders. Family meal experiences took account of six aspects: 'having meals

with family members', 'communication at the table', 'helping preparing meals/doing the dishes', 'table manners education', 'consideration for meals' and 'eating regularly'. The second part asked their present dietary behaviour, which took four aspects into consideration: 'eating balanced meals', 'preparing meals', 'enjoying meals', and 'table manners'. Research questions analysed were 1) how each aspect of family meal experiences in childhood was related to dietary behaviour in young adulthood, and 2) which aspects of family meal experiences in childhood predicted each aspect of dietary behavior in young adulthood.

### Results

Correlation analyses showed that each aspect of family meal experiences in childhood was related to four aspects of young adults' dietary behaviour in different ways. 'Communication at the table', 'helping preparing meals/doing the dishes', 'table manners education', and 'consideration for meals' were significantly correlated with all of the four aspects. But 'having meals with family members' was correlated only with 'table manners'. 'Eating regularly' was correlated with three aspects, excluding 'preparing meals'. Multiple regression analyses revealed that among six aspects of family meal experiences, 'communication at the table', 'helping preparing meals/doing the dishes' and 'consideration for meals' were strong predictors of young adults' dietary behaviour. From the results, family meal experiences in childhood are very important.

### Conclusion

Family meal experiences in childhood are associated with dietary behaviour in young adulthood, thus much more attention should be paid. This study can contribute to the development of dietary education programs for children and parents.

680	<b>The health and wellbeing of Australian indigenous young people: Identifying the evidence base</b>	
Lead author	<b>Peter Azzopardi</b> (Baker IDI Central Australia/Centre for Adolescent Health, Royal Children's Hospital, Melbourne)	Australia
Co-authors	<b>Power, R</b> (Burnet Institute, Melbourne) <b>Kennedy, E</b> (Burnet Institute, Melbourne) <b>Roseby, R</b> (Centre for Adolescent Health, Royal Children's Hospital, Melbourne) <b>Sawyer, S</b> (Centre for Adolescent Health, Royal Children's Hospital, Melbourne) <b>Patton, G</b> (Centre for Adolescent Health, Royal Children's Hospital, Melbourne) <b>Brown, A</b> (Baker IDI Central Australia, Alice Springs)	

### Aim

There are major incentives for investing in the health of Australian indigenous young people. However, data informing young people's health is of uncertain quality and reported within child, adolescent and adult literature. The objective of this study was to identify the evidence base for the health and wellbeing of indigenous young people.

### Method

Systematic literature review (1994 – current) of published literature reporting the health of Australian indigenous young people aged 10–24 years. Studies were mapped against global burden of disease framework and Close the Gap building blocks. Indigenous involvement and quality of ethical approval were measured.

### Findings

Three hundred and sixty-three publications reported health data on indigenous young people, 20 per cent exclusively sampling indigenous young people. Twenty per cent of publications evaluated a program or intervention; however, there were no randomised trials. Forty per cent of studies were retrospective with implications for ascertainment of indigenous status. Few studies reported the location of the sample; 20 per cent were based in rural areas and 7 per cent urban. Twenty per cent of studies sampled from population databases, 10 per cent from schools and 7 per cent from correctional facilities. Only 40 per cent indicated indigenous involvement in ethical approval; 30 per cent reported indigenous involvement in the research. Overall, 25 per cent of studies were focused on communicable disease, 25 per cent on non-communicable and 20 per cent on maternal health. Aside from health, few studies measured Close The Gap building blocks.

### Conclusion

The majority of health data for indigenous young people is reported within data for children and adults. Despite significant limitations, there are some data informing the health status of indigenous young people, providing a solid foundation for moving forward.

Room  
110**CSD 4 Consumer behaviour research**Chair **Miriam O'Donoghue**

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**Cross-cultural comparison of consumer behaviours during seasonal shopping events**

Lead author	<b>Hyun Ju Kwon</b> (Middle Tennessee State University)	United States
Co-authors	<b>Thomas Brinthaupt</b> (Middle Tennessee State University) <b>Sandra Poirier</b> (Middle Tennessee State University)	

**Aim**

Across many cultures, there are seasonal shopping events that are very popular with consumers. For example, in the United States, Black Friday (the day after Thanksgiving) is generally regarded as the busiest shopping day of the year. In Australia, Canada, and Europe, Boxing Day (the day after Christmas) is similarly a very popular shopping event. In Korea, there are annual sales events that parallel the seasons. Despite these traditions, very little research has been conducted on consumer behaviours before and during the events. The purpose of this study is to examine shoppers' motivations, intentions, experiences, information searching, resources, and preferences during these events.

**Method**

Data were collected from participants from the US and Korea shortly after a seasonal shopping event. Measures included consumer decision-making styles, evaluation of positive and negative experiences associated that event, specific shopping behaviours, and a variety of demographic items. Within 2–3 months of the major shopping event, participants completed the survey in small groups. In the US sample, participants reported on both their Black Friday and Cyber Monday (the Monday after Thanksgiving) shopping experiences. The Korean data are currently being collected.

**Results**

Regarding the experiences related to Black Friday, the participants were motivated to shop for specific deals, planned out their shopping trip, did not value the visual atmosphere of the stores, felt that their shopping efforts were worth it, and planned to shop on Black Friday again in the future. In terms of their specific information sources for Black Friday shopping, participants were less likely to use newspapers and more likely to rely on TV commercials and direct mail when learning about shopping specials. Regarding specific shopping behaviours shown by our participants, consumers shopped more often for apparel/clothing and other (non-grocery) products than they did for toys and electronics. Finally, shoppers were motivated to find good deals and frequently encountered long lines, large crowds, and traffic/parking problems.

**Conclusion**

Very little research of this nature has been conducted to date. This study provides much needed information about the experiences, motives, and behaviours associated with seasonal shopping events and possible differences across cultures. We will discuss the implications of these results for common and unique consumer behaviours and experiences across cultures. The identification of such similarities and differences can be useful for more effective and more consumer-oriented marketing and merchandising on a global level.

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## Promoting sustainability by focusing on parental indulgence of children: understanding stress and life satisfaction in current economic times

Lead author	<b>Carol Darling</b> (Florida State University)	United States
Co-authors	<b>Amanda Veldorale-Brogan</b> (Florida State University) <b>Catherine Coccia</b> (Texas A & M University) <b>Marsha Rehm</b> (Florida State University)	

### Aim

Moving toward sustainability by reducing the negative impact of humans on the ecosystem is a social challenge involving understanding and changes in lifestyles. One approach to facilitating sustainability is managing the consumption of resources, involving the interaction between lifestyles and economics. An emerging lifestyle trend is parents' increasing indulgence of children, which can be classified as too much (giving children too many resources), over-nurturance (doing things for children that they should do for themselves), and soft structure (imposing few rules or consequences for children's behaviours). Within our current economic context, this study aimed to examine the economic stress of adolescents and their parents along with parental indulgence and its relationship to life stress and life satisfaction.

### Methods

Using family ecosystemic theory, a mixed-methods design was used involving an electronic survey of 198 adolescents and 81 parents of 10th and 11th grade students along with interviews of a subsample of 15 parents and 12 adolescents. Measures included scales on parental overindulgence, perceived stress, life satisfaction, and questions regarding economic stress. Paired-tests were used to determine differences in parent-adolescent perceptions of variables of interest. Path analysis using AMOS 18.0 was conducted to test two identical models for adolescents and parents of the relationships among the three types of parental indulgence, economic stress, life stress, and life satisfaction.

### Results

Quantitative findings indicated adolescents perceived higher levels of stress and soft structure compared to their parents, whereas parents perceived higher levels of economic stress. Further analyses indicated that each type of parental indulgence affected parental and adolescent life stress and life satisfaction differently. Qualitative findings indicated parents' perceived benefits from indulging children (happier children and fewer personal hassles), but also stress from putting energy into indulging their children ('she wears me down'). The current economic climate affected families' ability to indulge children. Two families experienced financial hardship from losing jobs necessitating changes for their adolescents. Other families reported eating out less often, cutting extras, and worrying more. One mother commented, 'I know our situation could change on a dime'.

### Conclusion

Indulgent parents give an abundance of resources – objects, time, attention, money, and opportunities to their children. However, parents and adolescents perceive these transactions and current conditions differently. Understanding these parent-child interactions can assist family educators in helping families deal with our changing economic times and its role in family stress, life satisfaction, and sustainability.

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### The relationship between the perception of store atmospherics, mood and in-store behaviour: A study of young and old consumers

Lead author	<b>Syuhaily Osman</b> (Universiti Putra Malaysia)	Malaysia
Co-author	<b>Md Nor Othman</b> (University of Malaya)	

This study examines the relationship between store atmospherics, mood and in-store behaviour and aims to determine the moderating effect of age in the relationship between the influence of perception of store atmospherics and mood. The study used music, lighting, temperature, colour, store layout and salesperson as the dimensions of store atmospherics, and time spent, money spent and repatronage intention as the dimensions of in-store behaviour. Young and old consumers were involved in this study as the moderating factor in order to see the similarities or differences with regard to the influences of their perceptions of store atmospherics on mood. Using a mall intercept technique, together with a self-administered questionnaire, a survey of shoppers in clothing and apparel stores at selected shopping malls was carried out. Hierarchical multiple regression analysis found that age was the moderator in the relationships between the perception of music, temperature, and salesperson with mood. In contrast, age did not significantly interact with lighting, colour and store layout in influencing mood. The results of structural equation modelling have found that music, lighting, colour, and store layout were significantly influential on mood. In addition, mood was found to significantly affect respondents' time spent, money spent, and repatronage intentions.

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### Baking cupcakes and retro femininity: manufacturing nostalgia? A study of current home baking trends in the UK

Lead author	<b>Susan Bailey</b> (London Metropolitan University)	United Kingdom
Co-author	<b>Ann-Margaret Polius</b> (London Metropolitan University)	

The revival of home baking within the United Kingdom has been linked to factors such as the recession and rise in baking as leisure. This renewed interest is evidenced by the noticeable increase in home baking product sales, estimated at £429 million (Mintel 2010). The cupcake is often used as a symbolic representation of this trend in home baking. However, given the American heritage of the cupcake compared to the original context of small sponge cakes (fairy cakes) in the United Kingdom it could be suggested that cupcakes are manufactured nostalgia and were never part of British culinary history. The idea of retro recipes and vintage-style cooking arguably links in with consumers' increased awareness of food and its impact on the environment and the economy. Allotments (small plots of land rented to individuals for growing food crops), jam and chutney making, and chicken ownership have shown significant increases and suggest a move back to the home as a unit of production. But is it just a trend? It is removed from the necessity that tends to drive those on lower-incomes to produce food economically, so is it instead baking as leisure? The retro revivals of domestic products and the linking of baking with nostalgia (Schindler and Holbrook 1993) suggests that consumers wish to hark back to the past. But research shows that it is younger consumers that are following this trend that was never part of their lived experience. This paper will therefore seek to investigate the changing market trends in relation to baking, particularly of cupcakes, and the current interest in baking in the media. There will also be a review of the history of domestic baking trends, especially in the 1950s (Burridge 2008) where much of the retro context is perceived, and an analysis of the framing of retro trends. Finally, a study of the link with nostalgia and the issues of baking and feminism (Sanders 2009) will be explored.



## Symposium

Room 106	<b>SYMFAM 6 Rural, low-income families in the United States: Public policies supporting employment</b>
Chair	<b>Elizabeth Dolan</b>
Presenters	<b>Elizabeth Dolan</b> (University of New Hampshire, US) <b>Carolyn Bird</b> (North Carolina State University, US) <b>Seohee Son</b> (Sookmyung Women's University, Korea)
Co-researchers	<b>Sheila Mammen</b> (University of Massachusetts, US) <b>Jaerim Lee</b> (Yeungnam University, Korea) <b>Sharon Seiling</b> (Ohio State University, US)

Urban residents in the United States (US) often have an idealised concept of what it is like to live in a rural area, whether it is mountains, lakes, forests or fields of crops. While the scenery may be stunning, the economic conditions may mean that many rural residents are caught in low-paying jobs offering little in terms of advancement. The majority of jobs in rural US are related to the tourist, hospitality, and/or retail industries. Within this context, rural families are often low-income because the adults are unable to earn enough to reach financial self-sufficiency.

The proposed symposium will be based on the book titled *Rural Families and Work: Contexts and Problems*, published in September 2011. The book includes findings of numerous peer-reviewed journal articles, conference papers, and presentations using the data of the Rural Families Speak (RFS) project. The RFS project was a multi-state study that tracked the wellbeing and employment issues among low-income families in rural US over time. The research team collected and analysed both quantitative and qualitative data in thirteen states. The policy suggestions that will be proposed flow from the findings of the RFS research.

We propose that a panel of researchers involved with the book discuss the policy gaps, and overlaps, that challenge rural low-income mothers as they try to support their families. The format of the symposium will be as follows:

- A brief introduction to the topic by the session moderator
- Brief overview of the policy issues for rural low-income families
- A panel discussion focusing on the unique issues for rural families, the policies that overlap several areas of concern, and innovative proposals.

The session moderator will facilitate an interactive discussion with the audience. This model will allow for a number of ideas to be discussed and creative policy solutions to be proposed. Policies that facilitate rural, low-income families' ability to work are part of changing environment in the US. Therefore, we will address updated policies and issues that may be on the forefront in July 2012. The context of rural communities will be highlighted to reveal some of the issues of interest to international professionals working with families. RFS researchers found four issues/topics to be very important and relevant regarding rural families and work. These topics are (a) direct support for employment, (b) child care, (c) resources, and (d) physical and mental health.

## Workshop

Room 103	<b>WS PHIL Developing the ‘Partnerships for Home Economics Disaster Assistance to Developing Countries’ project: An international collaboration</b>	
Chair	<b>Juanita Mendenhall</b>	IFHE Council Committee
Presenters	<b>Juanita Mendenhall</b> (IFHE-US) <b>Janett Gibbs</b> (IFHE-US and IHES Board) <b>Mary Warnock</b> (IFHE-US President)	

Partnerships for FCS/Home Economics Disaster Assistance to Developing Countries’ is an opportunity for our professionals, students, schools, communities and organisations to assist diverse societies after damage by a disaster devastates home economics programs. Enabling these programs to recover and reopen assists in improving the quality of life for all and builds strong relationships among participants. A panel of Steering Committee members from AAFCs, IFHE, IFHE-US, CAHE and IHES will follow the project overview presented by the ‘Partnerships’ Project Coordinator. The final segment will be an interactive discussion, garnering input and support for this project to build partnerships and collaboration worldwide, contributing to the accomplishment of the UN Millennium Development Goals and those of cooperating organisations. Outcomes of this session will be shared with all interested parties on an ongoing basis.

**Learning objective 1**

Participate in ‘Partnerships’ to restart home economics programs after disasters in developing countries. Become involved with the project. Promote ‘Partnerships’ Project.

**Learning objective 2**

Contribute to ‘Partnerships’, moving it towards ‘readiness to act’. Develop effective collection and distribution plan. Construct guidelines for assistance.

**Learning objective 3**

Empower individuals, families and communities globally by participating in ‘Partnerships’. Build network needed for success. Assist with recovery according to ‘Plan’ developed.

## Concurrent sessions

Room 101	<b>EDU 11 Education programs for building capacities: special needs students</b>	
Chair	<b>Vulori Sarai</b>	

77	<b>Learning theory from practice – Home economics and special education in collaboration</b>	
Lead author	<b>Albina Brunosson</b> (Kristianstad University)	Sweden

A preceding study has given evidence for the possibilities that working with practically-oriented tasks can help teach theoretical knowledge. As students in need of special education may have difficulties learning theoretical aspects, and as home economics contains practical elements it comprise opportunities for learners to experience how senses can facilitate learning, with food as a point of departure. That is, food preparation can be a gateway to develop theoretical knowledge. Such a scenario could be particularly beneficial for students with special education needs. The project plan discussed here is a part of the preparation for a doctoral thesis, which focuses on the possibilities for special education students to acquire theoretical knowledge through practical learning situations, especially in culinary arts and meal science. Hence the aim with this research project is: to examine whether practical work in home economics, that is, food and meal situations in particular, could be a way to establish sustainable learning situations for students in need of special education; and also to analyse the interdisciplinary potential of home economics in relation to special education. The theoretical framework to be used is variation theory. The research method is learning study, which can be described as a version of action research. My expectation with this study is to explore how to create sustainable learning situations for students with special education needs employing the practically-oriented nature of the home economics subject and thus also increasing the standing of the same.

140	<b>The impact of children with special needs on the family: Considerations for teachers of young children in supporting the family's journey</b>	
Lead author	<b>Michelle Rupiper</b> (Univeristy of Nebraska-Lincoln)	United States

Parenting young children can be stressful in the best of circumstances. Having a young child with special needs places new and demanding stresses on the family system. Often times meeting the needs of a child with a disability becomes the focus of family attention. Parents may be overwhelmed with strong emotions, need to make difficult decisions regarding treatment for their child, and find that their lives have changed in unexpected ways. Parents experience a variety of emotions upon receiving the diagnosis of a disability regarding their child. They may react with disbelief, anger or denial. This is not an experience that parents choose but rather an 'unexpected journey'. As they enter a world filled with new terminology, interventions and professionals, the emotions parents experience are often intense and overwhelming. Research indicates that parenting a child with a disability is much more stressful than parenting a child without a disability. Parents are in need of support to meet the unique needs of their child with a disability as well as the other demands of family life. Teachers can provide support by helping families to access information and services, recognising the family as the decision maker for their child and ensuring on-going two-way communication. The best teacher-parent relationships are characterised by trust, openness and respect. The teacher and parent exchange ideas regarding interventions, educational approaches and day-to-day care for the child. During this session specific suggestions for fostering this type of relationship between the teacher and family will be provided. Examples will be discussed and time will be included for participants to share their insights and examples.

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### Professional attributes of home economics teachers in the implementation of the inclusion program

Lead author	<b>Flordeliza Subade</b> (Philippine Association for Home Economics State Colleges and Universities (PAHES))	Philippines
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The study determined the professional attributes or capabilities of home economics teachers in the implementation of the Inclusion Program in the Philippines. Some schools in the two cities in metropolitan Manila were randomly selected. A total of 164 home economics teachers and administrators (Sped Teachers) were randomly selected. One of the foremost concerns of home economics teachers are families who have children with special needs and how to bring normalcy among the members of the family or households. These concerns are being addressed by allowing special children to enrol/mix with other children in schools employing Inclusion Programs. A structured questionnaire was used in this descriptive research. The statistical design of Pearson's r, standard deviation, mode, frequency, weighted mean and decision to accept or reject the null hypotheses were made at 5 per cent level of significance. Findings showed that home economics teachers have attended training programs, seminar workshops on professional attributes/preparation needed to handle and work with special children. A majority of respondents have five years teaching experience in working with special children. The behaviour problems manifested by special children are aggressive, disrupted, destructive, anti-social, emotional and dependency behaviours. Measures like parent conferences and enrichment training programs for siblings and nannies are found not effective. There is no significant relationship between the teachers' professional attributes and measures taken to address the problem. Since the computed value is much less than the critical value, the null hypothesis was accepted. More functional and realistic approaches are highly recommended to meet the needs of parents, the whole family and the household. Further study is recommended to find how the family/household will best be able to cope with the mushrooming numbers of special children and how to protect the wellbeing of the family.

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### Using social story intervention to decrease inappropriate behaviours of children with autism

Lead author	<b>Angkhana Onbun-uea</b> (Kasetsart University)	Thailand
Co-author	<b>Shiepsumon Rungsayatorn</b> (PhD Assistant Professor)	

#### Aim

The objectives of this research were to study inappropriate behaviours of children with autism in preschool classroom, to study the efficiency of social story on children with autism, and to decrease inappropriate behaviours of children with autism. The total population for this study were nine preschool children with autism. The target group of this specific study was five children.

#### Methods

The research was done in three phases. Phase 1: Study of the problematic social skills by using survey research methodology. Phase 2: The effectiveness of the result of the experiment when using a single subject design with A-B-A-B design. Phase 3: Study on the effectiveness of social story intervention by using survey research methodology to develop the social skills of children with autism.

#### Findings

The research findings were that on Phase 1: The ten most problematic social skills of the nine preschool children with autism were: 1. getting up and walking around when teacher is teaching; 2. making loud noise; 3. didn't share their toys with others; 4. frustrated when not satisfied; 5. couldn't wait/no patience; 6. didn't put away their toys when finished; 7. picked up another person's belonging without permission; 8. didn't know how to greet others; 9. destroying things when angry; and 10. hugging others at inappropriate times. Phase 2: It was found that the social story intervention can decrease inappropriate behaviour of children with autism. The social story intervention consisted of social story books and e-books with five stories (one story per one child) by using a single subject design with A-B-A-B design. Alternately a fourth staged time trial in six weeks, five times per week, a total of 30 times. Phase 3: It was found that each social story intervention could not be applied to all children with the same inappropriate social skill-behaviour.

#### Conclusion

Children with autism were different in their characteristics. Therefore, the social story intervention should be designed for only the specific children with inappropriate social skill-behaviour. The children with autism preferred the social story books more than e-books.

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## An inquiry approach to learning and teaching technology and living: Exploratory activities designed for students with intellectual disabilities in the new senior secondary curriculum

Lead author **Theresa Lai yeung** (The Hong Kong Institute of Education)

China

### Aim

The New Senior Secondary Curriculum (NSS) implemented in September 2009 stipulates a 'learning to learn' approach to developing students' generic skills with a view to enable them to be life-long learners. While a large number of special schools admitting students with intellectual disabilities (ID) in Hong Kong will provide Technology and Living (T&L) (formerly known as Home Economics) as an elective subject, it is a great challenge to the T&L teachers in designing learning and teaching materials for the new curriculum that cater for ID students with diverse needs and abilities. To facilitate the implementation of NSS (ID) in special schools, the Education Bureau commissioned the Hong Kong Institute of Education to provide advisory and support services from 2009 to 2011 to special schools with a view to enhance learning and teaching strategies and subsequent effective learning of students. Among the various deliverables including conduct of school visits and professional development programs for teachers, a teaching package has been developed to brainstorm teachers with innovative learning and teaching strategies which are in line with the reformed curriculum. This teaching package consists of a range of exploratory activities complete with guidelines, activity manuals and tasks sheets, PowerPoint, pictures and videos.

### Method

While the learning and teaching activities compiled in the resource package adopt an inquiry-based learner-centred approach, which is very different from the traditional methods employed by teachers in teaching students with ID, attempts are made to observe and evaluate the use of these exploratory activities in the classroom, and to collect feedback from teachers regarding difficulties encountered, with a view to enhance teachers' abilities to develop students' generic skills, refine the design of the activities to cater for diverse needs of students and to share good practices. Five ID schools (participating on a voluntary basis) will be visited (five half-day visits to be completed by March 2012). Lesson observations will be conducted, followed by a discussion with the T&L teachers to gather feedback on the usability and practicality of the newly developed resources, the difficulties encountered and the strategies employed by the teachers to modify the resources to suit the diverse needs of the students with ID. A focus group meeting will be convened in April 2012 with the Professional Development Circle for T&L teachers of other ID schools to exchange ideas on the use of the resources. Feedback collected will be analysed and compiled for further recommendations.

Room  
102

## FAM 5 Family influences on pathways and outcomes for individuals

Chair **Virginia Vincenti**

70

## Home life, essential for the sustainable family

Lead author **Carmen Pavia** (Insednetwork)

Australia

Co-authors  
**Carmen Domenech** (Insednetwork)  
**Anne Zahra** (Insednetwork)

How can we achieve a sustainable family to generate excitement and hope in the future? This is achieved by having the project of turning our houses into homes, since the home is the place where the human personality is developed, and building a home is educating people who will, in turn, contribute to the social and sustainable development of society. To achieve this project, it is necessary to place importance on domestic tasks and to carry them out with professionalism. The positive results of these such tasks: healthy eating, as well as caring for materials of the home and clothing, all benefit, educate and humanise people, because these tasks help to strengthen interpersonal relationships. This contributes to the wellbeing of all the family members and it creates an environment of togetherness that

reinforces family ties, and ties with others. High management, in organisations of all sizes, recognises the impact that the worker's personal life has on performance. When a person is 'in control' of the management of life in the home, his/her mind is free to effectively focus on the work that he/she is doing. The secret to taking control in the home is to consider the home as a business with different departments, establishing strategies, prioritising and planning the tasks in order to meet the family's goals. In this way, while we are building our home, we can develop on a technical level, as well as on personal and interpersonal levels. To achieve this, it is of vital importance to learn how to understand the needs of other people and focus attention on material things. In training our outlook, we stimulate service, a basic attitude to create a home. Another important aspect is man-woman complementarity, and mother-father co-responsibility. Complementarity imbues family life although the way we live it depends on our own circumstances and on the aptitudes of each person. Collaboration in the project benefits everyone: children develop a sense of responsibility, gain self-confidence, consider themselves useful and learn to face challenges; parents know their children better and they take their children's differences into account; everyone improves communication. With this conception of the home, we will reach a work-culture that reveals the vital worth of motherhood and fatherhood, which will be seen as an opportunity open to both men and women. Bringing up and caring for children in the home entails an important contribution of social capital which will lead to the family, conceived in this way, being sustainable.

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### Understanding the reality of low socioeconomic single mothers regarding their children's school success

Lead author	<b>Julie Caissie</b> (Université de Moncton)	Canada
Co-authors	<b>Jeanne D'Arc Gaudet</b> (University of Moncton) <b>Marie Lachance</b> (Université Laval)	

According to research, when parents participate in their children's schooling, success is enhanced (Deslandes & Bertrand 2001). In Canada, the New Brunswick School System expects parents to actively participate in their children's schooling in a variety of ways, such as meeting basic needs at home, helping with homework, and regularly communicating with school staff members. For most parents, actively participating in their children's education is a challenge; however, the situation is even more difficult for French-speaking single-parent mothers living in impoverished neighbourhoods. Through qualitative methods of investigating, the aim of our research is to acquire an in-depth understanding of what these women experience and how they relate to their children's success in school. We interviewed eight single-parent Francophone mothers, six school teachers working at the primary level, and six family social workers collaborating closely with these families. Based on primary results, single-parent mothers face many obstacles on a daily basis, such as financial stress, low literacy skills, and psychological issues. They acknowledge that their children's success in school is important to them, and it seems that they do participate in various ways to help with their children's education.

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### The housework and homework of ten year olds

Lead author	<b>Jennifer Baxter</b> (Australian Institute of Family Studies)	Australia
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For better or worse, childhood experiences are clearly important factors shaping pathways and wellbeing across the life course. Assessment of these experiences tends to focus on environmental or contextual factors (e.g. family type, poverty, parental employment circumstances, and residential location) or processes (e.g. parenting styles). Far less attention is given to the way children spend their time, even though the experiences they accumulate during everyday activities can help shape their life trajectories. This paper focuses on the activities of 10-year-old boys and girls. At this age, children's days include a wide range of potential activities, despite being dominated by school on weekdays. To what extent are children spending their days on other sorts of 'work' – on housework or homework? New time use information, collected from 10–11-year-old children as part of Growing up in Australia: the Longitudinal Study of Australian Children allow us to gain some insights into this, and related questions of how children at this age spend their time. Descriptive and multivariate analyses of these data are used to build upon the existing research base on children's time use. In particular, the paper examines how time spent on housework and homework are related to time children spend on other activities, such as free play or organised activities, and how time use varies in families with different characteristics, for example, according to parents' work hours, family size and according to regional or urban location of residence. This provides some insights into the organisation of family time, and the ways in which household work may be distributed in different families. Throughout the analyses gender differences are also examined to determine whether at this young age, differences in time use patterns in these activities have already emerged.

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### Predominant home problems encountered by selected high school students in relation to academic performance

Lead author	<b>Anna Marie Barroga</b> (Ilocos Sur Polytechnic State College)	Philippines
Co-authors	<b>Desa Abaya</b> (Ilocos Sur Polytechnic State College) <b>Olivia Directo</b> (Ilocos Sur Polytechnic State College)	

#### Aim

Dealing with home turmoil can be one of the most stressful issues facing students today. These issues may leave the student feeling distraught, confused and alone. Trying to deal with these problems can be very disruptive to students' school life. It will affect student performance not only in terms of grades but also with the social interaction with fellow students. Learning to face these issues in a productive way will help the student become emotionally stronger and have better school life. This study aimed to identify and determine the effect of predominant home problems in relation to the academic performance of fourth year students at Narvacan National Central High School. A 10-point checklist was administered, results of which were collated, tabulated and recorded. Mean and ranking were used to identify the effect of home problems in relation to the academic performance of the students.

#### Results

Results showed that communication was identified as the number one home problem encountered by the student-respondents with a mean of 4.71 described as 'very serious'. Financial condition ranked second with a mean rating score of 3.46 and described as 'moderately serious'. It was found that 24 of the 90 student respondents are affected negatively by the identified predominant home problems described as 'very serious', with academic performance below 80%, passing the subject with a rating of 75% which is the base passing mark. Forty-two of the students were affected by problems described as 'moderately serious' and they have good academic performance ranging from 81 to 83 per cent. Twenty-four of the students were affected by problems described as 'serious' but they have very good academic performance ranging from 84 to 86 per cent.

#### Conclusion

It was concluded that predominant home problems have a negative effect with varying degrees of seriousness to the academic performance of the students and that parents' role in the educational success of students is very important. A number of recommendations were formed, regarding parental behaviour. It was also concluded that teachers should interact with their students' parents and guardians and tell them about the behaviour of their children and the need for parents to listen to their children's problems. Teachers should be supportive and sensitive to the welfare of students, especially with their emotional feelings.

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### Three dimensions of Thai women's role in supporting the strength of families: A case study of Khokkotao community, Supanburi Province, Thailand

Lead author	<b>Premruetai Yambunjong</b> (Panyapiwat Institute of Management)	Thailand
Co-author	<b>Renumas Gulasirima</b> (Suan Dusit Rajabhat University)	

As a result of ongoing changes in society, especially in the rural parts of developing countries, the role of women in the family context has shifted. In consequence, this affects lifestyle and family strengthening. The aim of this research was to study Thai rural women's role in supporting family strengthening: a case study of Khokkotao subdistrict, Muang district, Supanburi province. There were two objectives: one was to find out Khokkotao women's roles in three dimensions of family – household economics, relationships, and health; the other was to enable women to increase potential in strengthening their own families in these three dimensions. The research utilised mixed methods: quantitative and qualitative research. The survey questionnaires were provided to collect data from the stratified random sample of 400 Khokkotao women aged over 17 years living in four villages. Data analysis employed descriptive statistics such as percentage, mean, standard deviation and inferential statistics: t-test, F-test and Pearson's correlation coefficient. The numerical result found three criteria: family status, the role of women within the community, and occupation, to gain 20 representative women from all villages. After implementing the participatory action research (PAR) with these twenty women, the training program was organised according to the three dimensional problems determined. The final result was that women's empowerment towards strengthening families extended to strong and sustainable community.

Room  
104**IHM 1 Issues in food services and hospitality**Chair **Elisabeth Leicht-Eckardt**

62

**To what extent does compulsory schooling prepare professional cooks for later career transition?**Lead author **Cam Woolcock** (Marian College, Sunshine West)

Australia

**Aim**

The aim of this study was to identify to what extent compulsory schooling prepares professional cooks for later career transition. A cook's professional career often mirrors their compulsory schooling experience by a lack of planning, transience, impulsiveness and chance. Many cooks have poor experiences of formal education, both in compulsory schooling and at TAFE; however, cooks often experience success in kitchens. Professional cooks focus on attaining a set of culinary craft-specific skills which have limited applicability to other careers, whilst often missing opportunities to learn skills of a broader focus. Most cooks tend to career change with less than ten years experience of professional kitchens. Changing career increasingly requires pre-training from a formal education provider; however, previous poor experiences of formal education inhibits this re-engagement for many cooks.

**Method**

The research methodology explored the perceptions of twenty-four commercial cookery students (fifteen male and nine female) and their four chef-trainers (three male and one female) from a metropolitan TAFE (seventeen respondents) and a rural TAFE (eleven respondents) about the extent to which Certificate III in Hospitality (Commercial Cookery) is preparation for further education. While the research primarily focused on how experiences of TAFE and professional kitchens impacted on later re-engagement with further education, an unanticipated finding was the impact of compulsory schooling had on choosing to become a cook. To achieve this, the research sought the opinions of apprentices through focus groups and chef-trainers through semi-structured interviews.

**Findings**

The findings of this study include: poor cooks generally have poor career planning; the craft-specific focus of Commercial Cookery is of limited use after career transition; and the labelling of text-based learning as 'theory' leads to limiting self-concepts in some cooks. These findings indicate a need to review, anticipate, promote and prepare for the nexus between professional cooking and career change. The three potential stages for this preparation are in professional kitchens, at TAFE and during compulsory schooling. The most likely, best equipped and only stage that is legislated to provide career advice is compulsory schooling.

**Conclusion**

The conclusion is that the current education structure for Victorian Commercial Cookery students prepares them poorly for later career transition. This study should assist curriculum development through recommending scaffolding for later re-engagement with further education within Commercial Cookery study during compulsory schooling with a view to giving students a better chance to take control of their long-term future.

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**Measuring students' satisfaction about the foodservice offered at the United Arab Emirates University hostels**Lead author **Sidiga Washi** (United Arab Emirates University)

United Arab Emirates

Co-author **Najla Obaid** (United Arab Emirates University)**Aim**

To measure students' satisfaction about the food service offered at the United Arab Emirates University (UAEU) Hostels.

**Method**

A convenient sample of 554 undergraduate female students, representative of all nine colleges of UAEU, with a mean age of  $20 \pm 4.1$  years was selected from five hostels. A questionnaire was developed, validated, pilot tested



and finalised to collect data on demographics and information on personal as well as setting satisfaction of the food services offered in the hostels using a Elkhart scale of 1–5 to rate the services.

### Results

Results showed that the majority of students are Emirati (73.2%), single (90.6%), aged 19–23 (86.9%) and mostly of middle or high socioeconomic status (96.6%). For five determinants of personal satisfaction of the food services offered at UAEU hostels, less than 14% rated the services as excellent while 24.3–43.2% of the sample rated it as good. On the other hand, rating of the six determinants of setting satisfaction was somewhat similar to their rating of personal satisfaction. Over one third of the sample rated the services as good (30.6–40.7%), fewer were not satisfied (5.2–17.3%) and over three quarters (78.9%) used to obtain food from outside. Age and socioeconomic status seemed to be the strongest determinant of students' satisfaction in general. Younger students as well as those of middle or high socioeconomic status were less satisfied with the food and services offered.

### Conclusion

University hostel service should focus on two elements – service quality (responsiveness) and food quality (reliability) if students' satisfaction is to be treated as a strategic variable. The study is the first one of its kind to be carried out in a UAE student hostel and it will enhance the literature on food service management for college students.

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## How to support school boards in choosing the best catering service

Lead author	<b>Margot Steinel</b> (Hochschule Anhalt (FH))	Germany
Co-authors	<b>Doris Fey</b> (Vernetzungsstelle Schulverpflegung Rheinland-Pfalz)	

### Aim

School catering in Germany often suffers from inferior quality, because in the tendering procedure often the cheapest catering service, instead of the best catering service, wins the contract. It is difficult for a school board to identify the best catering service, because besides the price, specific evaluation criteria need to be worked out. The aim of the paper is to support school boards in choosing the best catering service.

### Method

To solve the problem, a scoring model is used. In the first step minimum quality characteristics are worked out. Offers that do not fulfil these minimum quality characteristics are ignored in the following steps. In the second step quality characteristics for the selection of the best catering service are collected. In the third step these quality characteristics are weighted. In the fourth step the scores for the quality characteristic values are worked out. In the fifth step all offers are scored according to the quality characteristic values in their offers. The identification of the best offer is documented in a comprehensible way without legal risks. This scoring model is transferred to an internet application 'Angebotsvergleich' (bid comparison) which can be used by the school board in order to choose the best catering service.

### Results

The internet application 'Angebotsvergleich' helps the school board in choosing the best catering service. It is compatible with the requirement of the tender procedure.

### Conclusion

Internet applications are valuable tools for jobs which need specialised knowledge, but are carried out very rarely. The tender procedure for school meals is one such example of a job well-suited to an internet application.

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**Swiss hospital food: Optimisation potential**

Lead author	<b>Susanne Hofer</b> (Zurich University of Applied Sciences)	Switzerland
Co-author	<b>Franziska Honegger</b> (Zurich University of Applied Sciences)	

**Aim**

In 2012 Switzerland will reimburse hospital costs through the diagnosis related group system (DRG), a system known for many years all around the world. This is a fundamental change as up to 2011 hospitals were paid for their costs, whatever the price (Fetter 1991; Teisberg 2008). One of the aims of the Swiss government is to handle the ongoing rise of healthcare costs through hospitals having to budget within the prospective reimbursement scheme. Therefore, hospitals need to analyse their processes in terms of effectiveness and efficiency. The intention of our research was to detect how this change influences hospitals' meal provisions for patients, in order to identify possible efficiency potential.

**Methods**

Literature review and qualitative interviews.

**Findings**

Today's spending for acute hospitals is about CHF 17bn (BFS 2011). Sixty-five per cent of that sum is consumed by hospitals' core activities, medicine and care. And 35 per cent, or CHF 6bn, by their supporting services, which are provided under the roof of facilities management (Lennerts & Abel 2006). It is clear that in Switzerland patient meal provision is one of the most costly support services due to the high costs of labour, material and patient expectations. The Swiss introduction of DRG involves two major changes directly affecting this process:

- Expected decrease in inpatients' average length of stay e.g. Switzerland 2010: 7.5 days, Sweden 2010: 4.5 days (OECD 2011)
- Change in space utilisation: up to 2011, space was defined by the user's needs; under SwissDRG the available resources define space allocation as construction has to be fully financed by the prospective payments.

Swiss hospitals offer their patients a broad range of different diet meals. Their number varies between 30 and 85 and the definition of diet is diversely outlined by the hospitals as there are no defined standards. With a share of 20–60 per cent of the total food production, administered diets generate a lot of the production cost and need production space. Production cost of the dietary food lies about 23–29 per cent above the cost for normal meals (Biotti & Hofer 2008).

**Conclusion**

The findings lead to the conclusion that efficiency potential lies in the reduction of costly diets as their use is questioned due to inpatients' decreasing average length of stay. Standards need to be defined. The new freed space of hospital kitchens could be used for more profitable activities.

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**Evaluating a nutrition education program for food service assistants in pre-schools in the Vaal region, Gauteng, South Africa**

Lead author	<b>Emsie Dicks</b> (Vaal University of Technology)	South Africa
Co-authors	<b>Wilna Oldewage-Theron</b> (Vaal University of Technology) <b>Rene Spillman</b> (Vaal University of Technology)	

**Aim**

The objective of this study was to evaluate a nutrition education program (NEP) that addresses the lack of nutritional knowledge among food service assistants/caregivers responsible for planning menus in pre-schools in terms of menu content and nutrition knowledge and food preparation practices required for children aged between two and five.

### Methods

A one-group pre- and post-test design was used making use of a descriptive survey in order to test the effects of the NEP on nutrition knowledge, menu planning skills and food preparation practices. A pilot study was executed to ensure reliability of the knowledge questionnaire designed for the pre- and post-tests. A situation analysis was done to determine the current situation at the pre-schools. The existing menus of the different preschools were also analysed to determine if the nutrition content was suitable for children aged between two and five. This data was used to develop the NEP. The NEP took place in three sessions over a four week period. After the implementation of the NEP the new menus planned by the food service assistants/caregivers were tested to determine the nutritional content. Food service assistants/caregivers from 16 conveniently selected low-income pre-schools in an informal settlement were selected to take part in the study. The menu content was analysed making use of the Dietary Manager 2006 version and compared with the EAR and the SA FBDGs. The data analysis of the knowledge questionnaire was done with Microsoft Excel.

### Results

The results indicated a small but significant increase in the nutrition knowledge of the foodservice assistants/caregivers. The caregivers struggled to understand portion sizes and to achieve variety in terms of colour and texture in their newly designed menus. Both the pre- and post-test menus exceeded the EAR's daily recommendation for micro-nutrients, protein and carbohydrates but not for energy.

### Conclusion

Most of the food service assistants did not have adequate nutrition knowledge, menu planning skills and hygienic food preparation practices. The food service assistants/caregivers did learn from the NEP but it is recommended that a more comprehensive program with a longer duration should be implemented to successfully address the problem of lacking nutritional knowledge. The focus should be on portion sizes.

Room  
105

## TEX 6 Textiles as a teaching tool for building capacities

Chair **Maija Kulakova**

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## The one-hour dress: Creativity and innovation from the 1920s for today

Lead author **Catherine Amoroso Leslie** (Kent State University)

United States

### Aim

By 1923 the Women's Institute of Domestic Arts and Sciences in Scranton, Pennsylvania, enrolled over 200,000 women in its correspondence dressmaking courses. In six years, it had become the largest women's college in the world. The vice president of advertising observed that their students were also customers of local retailers: 'What we needed was an idea that would make co-operation profitable to us both'. After experimentation, Mary Brooks Picken, director of instruction devised a system to make a dress in an hour. 'A one-hour dress' promotion could bring potential piece-goods buyers into the store and at the same time convince women who were thinking about taking the Institute's dressmaking course that by taking it, they really could learn to sew. Between April 1923 and April 1925, the one-hour dress was presented in over 200 stores in 41 US states. Demonstrations were staged on a platform set up in the piece-goods department. A large clock on stage in full view of the audience was started on the hour as the dressmaker began her work. An announcer from the Institute's instruction staff described each operation as she proceeded. Her progress became a race against time, with the audience excitedly watching the dressmaker and the clock. Yet, an established dressmaker from Chicago was skeptical: 'The reason [she] can make this dress in an hour is that she has studied every step and knows just what to do'. Regardless, thousands of women attended the demonstrations with stores reporting sales increases of as much as 105 per cent. The Women's Institute gained another 50,000 students. The purpose of this study was to research the phenomenon of the 'one-hour dress' and examine the feasibility of using this method to encourage sewing today.

### Method

Historical research including primary sources coupled with creative scholarship to create and document the making of the one-hour dress.

### Results

This study reveals the impact of marketing and promotion in calling attention to home economics subjects and supporting local businesses. Although the process took more than an hour for those not trained in the method, it nonetheless proved to be an attractive concept.

**Conclusion**

By using creative problem-solving skills and innovative ideas, home economics professionals can adapt past examples of successful outreach, encouraging a sustainable future.

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### **Need based training in designing, production and marketing of apparel and home textiles through Fair Trade centres in non-government organisation for needy women**

Lead author

**Ela Dedhia** (Nirmala Niketan College of Home Science)

India

**Aim**

To provide need-based training in apparel and home textiles to the needy women in slums and suburbs through an NGO.

**Method**

We conducted a detailed study of women in an NGO which was established in 1947 and is registered under the Public Charitable Trust Act, in Mumbai. We trained the women in sourcing, production and marketing of textile-based handicrafts, apparel and other utility items to help them sustain a living. We instilled organisational, leadership and administrative skills, along with life skills in these women as well as management of Fair Trade Centres (FTC).

**Results**

Over a three-year period many women have benefited from the skills and training provided. The majority of them have started their own enterprises. Those not so enterprising continue to be part of the cooperatives and are busy producing handicrafts and other articles. They are the breadwinners for their families. Hence, their standard of life is directly related to the turnover of this organisation. The management of the groups and every chain in the production process are taken care of by the women themselves. They work with professional designers. The more they produce, the more they earn. Vacation time, childcare and a base salary are guaranteed. These fair trade centres independently manage all their affairs and the head office of the organisation assists them in fulfilling orders, managing the finance, maintaining discipline etc. The members are entitled to the profits that are generated. Reasonable prices, end-of-season sales, exports, domestic sales, novel and creative ways of selling such as shop on wheels, participating in exhibitions and sales organised by both government and NGO's contributed to the success. Constant up-grading of products and changing fashions called for up-grading of their skills as well. Besides training in tailoring, they needed education about how to deal with different departments of the municipal/government, to source the right raw material from the right place at the right time, to calculate costs and do accounts, to deal with different consumers/buyers, to learn different styles and sizes of packaging and labeling. Personality Development Programs were useful to face the challenges of everyday life. Saving was not a natural habit for these people given the level of poverty. On the other hand, borrowing at exorbitant interest rates was second nature to them thus becoming prey to the loan sharks. To counter this, a saving and micro credit program was initiated.

**Conclusion**

Social enterprise and fair trade is the answer to globalisation and its after-effects. When the entire world is propelled by profit motives this organisation, through this research, has joined the movement of fair trade which 'makes not a few millionaires but many breadwinners' for a sustainable community.

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### **Promoting textiles within my school environment**

Lead author

**Gabriella Verstraeten** (Thomas Carr College)

Australia

I would like to present a PowerPoint that focuses on the work of students and the engagement of the school community in the realisation of textile artworks at my school in Melbourne, Australia. At the secondary school I teach at, Thomas Carr College, I have been involved in the creation of two major textiles art works that have become a major focus in my school's identity and its environment and have contributed to the positive promotion of this subject in an exciting and long-lasting way. Both projects have involved participation and contribution of students of both genders across an entire year level. The first project was the creation of four felt panels that tell the story of our school and its link to the surrounding environment. Each panel is approx. 1 m x 2.5 m. They are composite panels and must hang together to tell

the story as a whole. Firstly, a local contemporary professional artist was commissioned to create an artwork. A fibre artist was then employed to realise the design in felt with students. This project was an activity to celebrate the tenth anniversary of the school. The two artworks create a fantastic welcoming in the school foyer. The project generated publicity in three local papers. The second project is current and ongoing. It involves the creation of altar cloths and fabric backdrops for the College's religious celebrations. All year 7 and 8 students create fabric prints that have been pieced together to create these clothes. They are bright, joyous and celebratory. The components are made in the classroom with their teacher. The existence of these cloths has done much to lift the visual presence of these rituals at the school without seeming to have that heavy religious overtone.

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### Craft as an instructional tool for multi- and intercultural education: A case study in textile teacher education

Lead author **Tarja Kröger** (University of Eastern Finland)

Finland

Finland is experiencing increased cultural diversity due to immigration and is facing challenges in developing multi- and intercultural education in schools and in teacher education. Multicultural perspective seeks to recognise the differences and diversity of people. Intercultural perspective has an ambition to nurture communication and interaction between diverse people. In this presentation, I wish to show how, in practice, craft can work as a safe tool both in multi- and intercultural education. The presentation gives an overview on the Multi- and Intercultural Craft course, including detailed discussions of lecture topics, assignments, and a project. The course was held at University of Eastern Finland's Department of Applied Education Science and Teacher Education in spring 2011 for two months. The course was aimed at students who will become textile craft teachers. The course included a theoretical part that was organised through the virtual platform Moodle. The course also included a practical part, a project, where Finnish exchange students and a group of immigrants from Burma met in the context of craft. The students were asked to write a reflective essay about the course and the project. In the analysis of essays, their significant learning experiences, were examined as data. The course proved that craft education is an ideal vehicle through which a teacher can provide opportunities for intercultural communication and action, and to gain understanding of differences and otherness. Craft can work as a tool for broadening dialogue and understanding. It can be a tool for promoting co-operation among diverse individuals and groups in society and hence increasing intercultural sensitivity and wellbeing. Secondly, it was possible to facilitate experiences in blended learning. It is important to democratise the opportunities for more flexible education by offering blended learning. The course structure proved to be useful for blended learning methodology. Thirdly, this presentation tries to launch co-operation in the field of multi- and intercultural education. This kind of course could be developed as a joint course together with partner universities. A joint project with the same platform could be a good opportunity for multicultural communication and intercultural action between students from different countries.

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### Textiles as a cross-disciplinary sustainability teaching tool

Lead author **Gwendolyn Hustvedt** (Texas State University)

United States

#### Aim

This Texas State University course was designed to provide a basic textile science education for students from a variety of disciplines (English to economics) as well as challenging them to consider the issues of sustainability created by textiles. Education for sustainability poses many challenges and one of them is that many students lack the scientific foundation to understand concepts such as global warming or climate change. By drawing students in by using a topic like textiles, which, while unfamiliar to many students, excites curiosity, this course draws on the best of the home economics tradition that asserts that science should be available to everyone.

#### Method

The text for the course was a publically available 2006 report on the sustainability of the UK textiles industry titled *Well Dressed*, compiled by researchers at the University of Cambridge. The culmination of the course was a design project, called 'Choose your own apocalypse', intended to introduce textiles to students who had never before considered the source or structure of clothing. After a discussion of the enduring popularity of post-apocalyptic English language fiction, the student selected an apocalyptic scenario as the backdrop for their design process. Apocalypse was chosen because the disruption of the normal flow of goods and services caused by man-made or natural disaster provides an opening for the expression of creativity. Apocalypse also served as a focus for sustainability related anxiety and allowed students to express their optimism or pessimism about the impact of human on the environment through action rather than words.

**Findings**

The first step of the design process was to completely dismantle a textile product of their choice. Some students brought in typical clothing (sweatpants, shorts) while other students selected items with symbolic meanings for their apocalypse. A student using *The Handmaid's Tale* by Canadian author Margaret Atwood bought a used wedding dress while a student inspired by the Kevin Costner film *Waterworld* dismantled an umbrella. The design process focused on creating something from the dismantled textiles that would be useful in the post-apocalyptic environment, from flippers to swim a water-soaked world to an enveloping sunshade needed to cross a desert.

**Conclusion**

The exhibition of the designs sparked conversation about the role of textiles in everyday life both pre- and post-apocalypse. Post-course evaluations suggest that the course was successful in its goal of introducing textile science and expanding students' scientific fluency related to sustainability.

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**Corporeal cloth: An 'embodied practice'**Lead author **Melissa Laird** (Whitehouse Institute of Design)

Australia

Invested with characteristics of 'embodied practice', the body is used in this paper to inform a series of textile narratives, Corporeal Cloth. Drawing on the physicality and material structure of the human body, this presentation provides evidence of embodied textile and fashion research practice undertaken by two Whitehouse Institute of Design final year students. Using the body in very different ways, the students' work is used to examine the diversity and possibility for design outcomes afforded within the framework of one brief - 'Fragments: Memory and cloth'. The particular learning and teaching approach for this unit of study provided the research foundations for conceptual frameworks which prompted very personal and unique approaches to textile design and their application to fashion ranges. Aspects of physical and mechanical memory were applied to the humble materiality of cotton and leather - the body a primary motivator for design development. These textiles possess additional meaning as clothing though their association with intimacy, and develop as narratives as garments shadowing the body, and by revealing a deeper personal significance for the designer. These original designs become protective amulets, graced with imitative magic through their personalised craftsmanship and materiality. With their own developing mechanical memory, they protect the torso, heart, bosom and vulnerable throat: corporeal cloth. This paper references the work of Sarah Miller and Ryan Samways.

Room  
110**EDU 12 A broader approach to home economics curriculum**Chair **Joyce Mok**

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**Home economics and spiritual health and wellbeing: A framework for investigation**Lead author **Jay Deagon** (Griffith University/HomeEcConnect)

Australia

Spiritual health and wellbeing is a foundational home economics and health education concept, yet it is an elusive concept in terms of conceptualisation as well as identifying an evidence-base to determine its presence or absence. This paper explores synergies between home economics and contemporary health and education literature to provide a new and unique perspective for exploring spirituality in research and practice. The purpose is to clarify spiritual concepts so that we, as home economics professionals, can have a clearer understanding of it. A culturally and socially diverse and inclusive framework for investigation has been developed that enables representation of the many individuals that make up the global home economics community. The framework is based on two propositions. First, spirituality can be observed and measured because it is a publically and socially enacted phenomenon. Second, spiritual health and wellbeing is an umbrella concept that unifies ideas about quality relationships with one's self (individuals), how we relate to others (families and communities), our care and stewardship of living and non-living creatures and environments (sustainable development) and acknowledges that humans are capable of transcendence and operate within larger realities (local and global citizenship). The research aim is to determine what spiritual health and

wellbeing might 'look' like according to this framework. The practical application of this theoretical perspective is being used to explore digital artefacts that include sights/sites of spiritual health and wellbeing within the web-base research site [www.HomeEcConnect.com.au](http://www.HomeEcConnect.com.au) as a virtual community of practice.

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### Constructing gender in home and consumer studies: The case of pupils in Sweden

Lead author	<b>Monica Petersson</b> (University of Gothenburg)	Sweden
Co-author	<b>Emmalee Gisslevik</b> (University of Gothenburg)	

#### Aim

Studies about boys and girls in the context of home and consumer studies are rather infrequent in Sweden as well as worldwide. The focus of this paper is to analyse constraints and possibilities in how boys and girls construct gender in this field. One point of view is also to reflect the potential of the subject in the light of the new Curriculum Lgr11. Theoretical points of departure are post-modern research on femininity and masculinity influenced by Judith Butler and Robert Connell.

#### Method

The methodological approach has involved qualitative methods and data are collected from classroom observations with pupils in 8th and 9th grade. The empirical work came partly from the national evaluation of home and consumer studies (Skolverket 2005) and partly from a field study.

#### Results

Findings suggest that both boys and girls construct gender in ways that both cross gender-related barriers and reproduce stereotypical values. In many situations gender equity seems to be present and individual differences can also be seen. There are no typical tasks that only boys accomplish or vice versa. Despite the fact that the context of Home and consumer studies illustrates a dynamic setting of gender relations, some situations were recognised where the pupil uses gender-related strategies. The boys compete and act from an egoistic point of view and the girls take care of the group and act prudently. A conclusion is that constructing gender is also depending on beliefs about whether the context is feminine or masculine.

#### Conclusion

Home and consumer studies have potential to encourage the crossing of gender-related boundaries. But the subject has a strong feminine tradition and it is important to be aware of reproduction of femininity and masculinity. It is crucial that stereotypical norms and values come into sight and also to put gender relations as a pedagogical question. Crossing barriers would benefit both boys and girls and is an important part of creating a sustainable society both at home and in their future professions.

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### Embracing critical and creative thinking in home economics curriculum

Lead author	<b>Lorraine Tran</b> (Victorian Curriculum and Assessment Authority)	Australia
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The inclusion of the General capabilities including critical and creative thinking in the Australian Curriculum holds great potential for enhancing learning in home economics subjects. Drawing on the work of Robert Swartz, Edward De Bono, Howard Gardner and others on thinking-based learning, this paper will provide a background and specific examples of how critical and creative thinking, when infused into content instruction can support delivery of essential knowledge, understandings and skills in food technology and textiles subjects. A specific focus of this paper will include how organising ideas for sustainability as a cross-curriculum priority within the Australian Curriculum can be embraced through inclusion of critical and creative thinking tools. The paper will discuss how these approaches can enhance student learning; in particular, to develop more skilful decision making.

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## Connecting senior home economics curriculum in Victoria with real life case studies focusing on the work of non-government organisations

Lead author **Karen Howarth** (Loreto Mandeville Hall Toorak)

Australia

This presentation will focus on how I have used the work of the non-government organisation Mary Ward International Australia (MWIA), the aid and development organisation of the Sisters of the Institute of the Blessed Virgin Mary (ibvm) to support the senior home economics curriculum (called Health and Human Development) in Victoria, Australia. Examples of health promotion programs MWIA are implementing in Australia and Internationally that I have used to support the learning of my students will be provided. These will include:

- The Strong Young Mums program (SYM): a program that was developed in Bourke in response to the large number of teenage mothers in the community who drop out of school after learning they are pregnant. Some of the childhood services provided include playgroup sessions, weekly maternal and child health care visits, wellbeing checks and referrals to support services.
- The Lukulu Baby Milk Program: a program that was developed in Lukulu, Zambia, in response to the large number of infants in this area who were dying of malnutrition as a result of their mothers dying in childbirth or being unable to feed their infant children due to the high rate of HIV/AIDS. Some of the services provided include a milk supplement to infants whose mothers are unable to breastfeed them and hygiene, nutrition and HIV/AIDS education programs to support those involved in the feeding program.

Discussion will cover how these programs connect to the senior home economics curriculum (VCE Health and Human Development) and how these programs raise the awareness of Australian and global social justice issues for students, enabling them to make connections through activities they are involved in as members of the Loreto school community, with positive impacts on their learning.

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## Sustainability and the home economics classroom

Lead author **Janet Reynolds**

Australia

In recent times the home economics profession has openly pledged support for sustainable futures. Home economics educators have embraced this philosophical stance, with many incorporating sustainability practices in their teaching and with at least some instances of sustainable futures being introduced into home economics syllabi. Concomitant with sustainable futures, educators are encouraging students to examine social justice issues as they pertain to everyday living and the impact on individual and family wellbeing. This presentation will examine key messages and appropriate approaches for teaching 'sustainable futures' in the home economics classroom, especially as they relate to food and nutrition, and to textiles and fashion. It will explore how to move students from espousing commitment to sustainable futures to 'walking the talk' and taking action. Empowerment and social inquiry approaches will be considered, coupled with technology practice as appropriate. An overarching framework will be presented along with examples of units of work suited to the secondary years of schooling. Some prepared unit outlines will be shared with the audience, featuring unit overview, key understandings, cognitive processes, capabilities, references to resources, some learning experiences, explicit teaching required, an overview of the assessment task, and the criteria and standards for the task. The suite of units will include food and nutrition, and textiles and fashion ideas that reflect a commitment to both social and ecological sustainability. Participants will be invited to modify the units to suit their own context. This session is aimed at anyone who is interested in current curriculum issues and good classroom practice that pertains to contemporary demands.



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## Male students' enrolment in consumer sciences: A Case study of University of Swaziland

Lead author	<b>Beatrice Mantyi-Ncube</b> (University of Swaziland)	Swaziland
Co-author	<b>Gcina Mtsetfwa</b> (University of Swaziland)	

### Aim

Consumer sciences are very important in people's daily lives. It is a profession that is a key component of global wellbeing for individuals, families and communities, as it involves food and cooking, includes aspects of diet and health, resource management, as well as apparel/clothing and textiles. The discipline began as a course for women to learn life skills; hence school programs that relate to home economics are not always promoted to male students. The purpose of the study, therefore, was to investigate students' perceptions towards Consumer Sciences. The study involved students enrolled in the consumer sciences programs and other programs in the Faculty of Agriculture (UNISWA).

### Method

The descriptive research employed quantitative research design. The target population was 50 students in consumer sciences programs and 50 male students from other programs from years 1 to 4 at UNISWA in Luyengo Campus. A stratified sampling procedure was used; respondents were randomly selected to strata and variables of strata being gender and program of study. A questionnaire with close-ended items was used to collect data, after validation by lecturers from the Consumer Sciences Department and pilot-testing at a training college, the reliability was 0.80.

### Results

From the results most male students thought that consumer sciences are only about cooking and sewing. Furthermore, students in other programs were not aware of career opportunities for males in consumer sciences (e.g. consumer sciences offer fewer job opportunities for males (M=4.58; SD 1.07); consumer sciences are programs specifically created for females (M=4.12; SD=1.1.08); and are 'not interesting and challenging for males' (M=4.32; SD=1.70) on a six-point Likert scale. While students in the program disagreed with those in other programs e.g. 'provide information that is only useful for females' (M=1.66; SD=519); 'do not offer opportunities for self-employment' (M=1.28; SD=783).

### Conclusion

Male students' perception that consumer sciences are mainly about cooking and sewing, and therefore not offering opportunities for self-employment could be a major contribution to low male enrolments. Most male students would not be aware of consumer sciences' benefits as they perceive the discipline to be mainly about cooking and sewing, and therefore not knowledgeable about the diverse job opportunities now available in the discipline for males. Also, the gross imbalance between male and female enrolment could have been caused by cultural practices in society resulting from ingrained prejudices, attitudes, customs, and behavioural decisions. Based on the results it can be recommended that consumer sciences be a compulsory subject for both males and females at primary and high schools. Efforts from parents through involving and teaching boys homemaking skills and the teachers' encouragement of male students could help improve enrollment rates both at high school and tertiary levels. Further studies should be conducted in other tertiary institutions offering consumer sciences-related disciplines. Furthermore, career guidance and/or activities to create awareness and sensitise both high school students and the public of the benefits of the discipline are crucial.

Room 111	<b>HTS 3 Sustainable household fuels: implications for global wellbeing</b>	
Chair	<b>Rainer Stamminger</b>	

94	<b>Effect of implementing eco-cooking at commercial cooking facilities</b>	
Lead author	<b>Ayako Mikami</b> (Tokyo Gas Co Ltd)	Japan
Co-author	<b>Keiko Nagao</b> (Tokyo Kasei University)	

Eco-cooking comprises a series of activities which involves shopping, cooking and cleaning performed in an ecologically friendly manner. This approach started in Japan in 1995 and today is regarded as one of the effective measures which any household can adopt in order to reduce global warming. We have already reported that gas can be reduced by 45%, water by 80% and waste by 60% just by teaching eco-cooking concepts and methods to university students. Therefore, if all households in Japan had to implement eco-cooking, it is estimated that total annual CO<sub>2</sub> emissions can be reduced by 5.9 million ton. In our research, we investigated the probable CO<sub>2</sub> reduction if eco-cooking is introduced to commercial cooking facilities in Japan. Shinjuku-gyoen restaurant helped with various cooking exercises to verify the aim of our study. We selected three different menu items; 'curry with rice' and 'stewed beef with rice', both popular dishes at the restaurant, and 'eco-cooking dry curry with rice', which was designed especially for this study. Each menu item included a beverage. We then employed two different methods of cooking; one involved not being eco-cooking aware and the other involved implementing an eco-cooking approach. All data was converted into CO<sub>2</sub> emission equivalents. We also performed other exercises to measure the effect of eco-cooking by introducing 25 key eco-cooking methods for the preparation of other menu items at the restaurant. For 'dry-curry with rice', we reduced gas by 31%, water by 86% and waste by 81%, which can be equated to a 49% reduction in CO<sub>2</sub> emission. In addition, applying eco-cooking to the other two menu items revealed similar results. Implementation of the 25 key methods to other regular menu items reduced gas by 16%, water by 22% and waste by 37% when compared with regular cooking which was previously practiced at the same restaurant. Based on these results, we estimated that a two-ton reduction in CO<sub>2</sub> emissions per year can be obtained if the restaurant continues to apply eco-cooking to all cooking activities. In conclusion, promoting eco-cooking to not only regular households but also to commercial facilities will contribute greatly to reducing environmental problems such as shortage of food, water and energy.

183	<b>The health impacts of biomass burning for cooking</b>	
Lead author	<b>Konstadinos Abeliotis</b> (Harokopio University): congress presentation by co-author <b>Christiane Pakula</b>	Greece
Co-authors	<b>Christiane Pakula</b> (Bonn University) <b>Jasmin Geppert</b> (Bonn University)	

Biomass is a renewable energy source that is routinely used for cooking in the developing world, especially in rural areas. OECD estimates that 2.5 billion people rely on biomass such as fuel wood, charcoal, agricultural waste and animal dung, to meet their energy needs for cooking. The aim of this paper is the presentation of the adverse health impacts of biomass burning based on the review of literature. Biomass consists mainly of carbon and hydrogen. Inefficient biomass-to-energy conversion technologies cause serious adverse consequences for human health. There are certain types of indoor pollutants that are directly attributed to biomass burning. The main result from biomass burning is smoke, a mixture of both particulate matter and chemical gases. Smoke is an extremely complex mixture of pollutants, both in physical and chemical characteristics, and toxicological properties. In developing countries, exposure to smoke is the greatest indoor pollution problem. The most important constituents of this mixture, in addition to their adverse impacts on human health, are presented:

- Major constituents of the smoke are respirable particles i.e. particulate matter of a small enough diameter (6–7 µm) to enter and remain in the lung. The particulate matter comprises a mix of organic and inorganic substances including aromatic hydrocarbon compounds, trace metals, nitrates and sulphates.

- Carbon monoxide, a toxic odourless gas produced by the incomplete combustion of fuel. Cooking stoves are among the major indoor sources of CO. The toxic properties of CO are largely associated with its high affinity for oxygen-carrying proteins such as haemoglobin. CO displaces oxygen in haemoglobin, lowering the oxygen carrying capacity of the blood.
- Carbon dioxide is the main combustion product from gas, kerosene, and wood or coal fuelled appliances. Carbon dioxide is a simple asphyxiant and can also act as a respiratory irritant.
- Finally, nitrogen dioxide formed by nitrogen and oxygen during combustion at high temperatures. Hence, the production of NO<sub>2</sub> is particularly associated with the operation of biomass burning stoves. NO<sub>2</sub> is an oxidising agent that can be very irritating to the membranes of the lung.

In conclusion, about 1.3 million people – mostly women and children – die prematurely every year because of exposure to indoor air pollution from biomass. The effects of exposure to indoor air pollution depend on the source of pollution (fuel and stove type), how pollution is dispersed (housing and ventilation) and how much of their time household members spend indoors. Encouraging people to switch to modern cooking fuels and technologies in addition to adequate ventilation can improve this situation.

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### Meeting household nutritional needs and poverty reduction amid scarce cooking energy in Abia state, Nigeria:

Lead author	<b>Georgina Anozie</b> (Michael Okpara University of Agriculture)	Nigeria
Co-author	<b>Ezeoguine Juliana</b> (Federal College of Education)	

#### Aim

The cost of cooking gas, kerosene and firewood has become so high in recent times that Nigerian families are confused about the present condition of living. This coupled with irregularity in supply of cooking gas and kerosene, frequent power failure and uncertain supplies of fossil fuels goes to make domestic energy consumption an area of concern for families especially in Abia state. This study focused on the effect of scarce household cooking energy on families in Abia state and also identified coping strategies adopted by households for sustainable living.

#### Method

The study was carried out in Abia state of Nigeria. Multistage sampling method was used to select a total of 260 respondents. Validated questionnaire was used to collect relevant data from the respondents. Data was analysed using descriptive statistics.

#### Results

The findings of the study revealed that households in Abia state spend up to 12 per cent of their income on household cooking energy (kerosene, gas and firewood). It was also found that nutritious foods such as beans and peas are not popular because they require more energy for cooking. Reduction in the feeding allocation, poor storage and preservation facilities, malnutrition, food-borne diseases and inadequate supply of water are some of the adverse effects of scarce household energy on families. To alleviate some of these problems, it was found that families had to substitute one type of fuel for others depending on the situation. Some rich families used a renewable source of electricity (solar). Others use mainly ready-to-cook foods to save fuel while some families prefer to eat outside in restaurants and hotels to save money.

#### Conclusion

It is no gain in saying that money for daily household food needs is sacrificed for the purchase of cooking energy. This is inevitable as energy is needed on daily basis to cook food. The consequence is that poor households are deprived of daily adequate diet. As a result of that many of them suffer from malnutrition and other food-related illnesses. Reduced reliance on oil for cooking and diversifying through the use of non-petroleum sources of energy is a sure way out for families who can afford it. A proactive and pragmatic approach to the issue of price might involve upholding the policy of subsidy at least for kerosene because it is the most common cooking energy for the households. This will go a long way to help households achieve sustainable futures.

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### Advances in scaling up clean cooking technologies and developing best practices in air quality and comfort

Lead author	<b>Christiane Pakula</b> (University of Bonn)	Germany
Co-authors	<b>Hester Steyn</b> (University of the Free State) <b>Rainer Stamminger</b> (University of Bonn)	

In 2010 the United Nations and the World Health Organisation founded the 'Global Alliance of Clean Cookstoves', a public-private partnership of different stakeholders who work together in order to 'save lives, empower women, improve livelihoods and combat climate change by creating a thriving global market for clean and efficient household cooking solutions' (<http://cleancookstoves.org> 2011). In 2011 the International Federation for Home Economics (IFHE) joined the Alliance as a 'Champion Partner'. On behalf of IFHE, the Programme Committee on Household Technology and Sustainability (PC HT&S) has taken on the support of the Alliance's vision and mission. Raising awareness of the problem of inefficient cooking with biomass, convincing manufacturers and consumers that efficient cooking solutions have to be scaled up and disseminating information on best practices in cooking are the main tasks of the committee members. As air pollution is highly related to inefficient cooking with biomass, the members of the PC HT&S have also agreed to work on the development of best practices in the working field of 'Air Quality and Comfort'. Efforts have been made to find international experts in air pollution and create a platform for discussions about efficient measures to combat air pollution from cooking with biomass and thus climate change and diseases in smoke caused by inefficient cook stoves. The presentation will show the activities of the PC HT&S within the 'Global Alliance of Clean Cookstoves' and will discuss the advances that have been made concerning the creation of a working platform for the topic 'Air Quality and Comfort'.

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### Research on importance of women's empowerment in endogenous development of Nepal: A survey on bio-gas

Lead author	<b>Manita Shrestha</b> (Tokyo Gakugei University)	Japan
Co-author	<b>Reiko Matsubaguchi</b> (Yokohama National University)	

Endogenous development and gender are two very important topics for the advancement of developing countries. Women's work is normally unpaid, barely recognised and extremely undervalued, leading to work overload. Women mostly carry out household work like firewood collection, food processing, caring for children etc and also a major part in the work related to household agricultural production, which has played a huge role in the deterioration of quality of life. Despite this fact, women's empowerment based on daily life is an important factor in solving the social problems that affect further development of Nepal. In the Chitwan area of Nepal, bio-gas was an innovation to control deforestation, to encourage a decrease in the use of firewood, and for women's empowerment in terms of reducing unpaid working hours spent on household tasks, firewood collection etc. Therefore, the research paper aims to clarify the accomplishment of the goal of introducing bio-gas and the important factors for endogenous development. The questionnaires and semi-structured household interview of 102 households on bio-gas was conducted on 2010. The results proved that the goal of bio-gas was not literally accomplished and the importance of 'livelihood based environmental education' was recognised. The next field survey was conducted on 2011. Similar methodology was applied to collect data of both bio-gas users and non-users. This individual paper is based on survey data of 2011. At the moment, survey data are analysed to figure out the impact of using bio-gas on women's empowerment. The results thus achieved will be able to show that women who use bio-gas acquire free time. If this free time is used in effective ways for the improvement of women's lives there is linkage between the use of bio-gas and women's empowerment, in terms of reducing unpaid working hours spent on firewood collection, food processing etc. Besides that, the amount of firewood used in daily life is decreased which means that the use of bio-gas is also linked with environmental conservation. In turn, women who are not using bio-gas due to specific reasons are still experiencing work overload. Thus, it can be derived that a decrease in women's work overload is important in achieving women's empowerment and to link it with endogenous development. In conclusion, it will be proven that development plans that consider gender issues based on daily life are essential for the endogenous development of developing countries.

## Symposium

Room <b>106</b>	<b>SYMEDU 7 Speaking out for home economics in the 21st century Australian curriculum</b>
Chair	<b>Marilyn Yates</b>
Presenters	<b>Marilyn Yates</b> (Home Economics Institute of Australia/Department of Education, Western Australia) <b>Dr Janet Reynolds</b> (Home Economics Institute of Australia) <b>Leanne Compton</b> (Home Economics Institute of Australia/Victorian Department of Education and Early Childhood Development)

This symposium is presented on behalf of the Home Economics Institute of Australia (HEIA). It comprises a series of short papers that provide a case study of the role of the professional association in advocating for the inclusion of home economics in a 21st century Australian curriculum. In responding to a rapidly changing world and acknowledging the central role of education in building a democratic, equitable and just society, Australia is undergoing national curriculum reform. HEIA has played a pivotal role in influencing public educational policy regarding home economics education. The papers presented in this symposium identify HEIA's position, the arguments for the position and the nature of the home economics curriculum proposed to the Australian Curriculum Assessment Reporting Authority (ACARA). They map the strategies and actions taken regarding home economics education during the development of, and since the publication of the 2008 Ministerial Council on Education, Employment Training and Youth Affairs (MCEETYA) Melbourne Declaration on Educational Goals for Young Australians Australian. Participants will be exposed to an activist view of home economics-related professionalism. They will also receive information about the current status of the Technologies and Health and Physical Education learning areas. Participants will have the opportunity to respond to the presentations, identify issues, discuss HEIA's position and make suggestions regarding what teachers can do to complement the work that HEIA has done and how they can 'walk the talk' promoting the value and place of home economics in the 21st century Australian Curriculum.

## Workshop

Room <b>103</b>	<b>WS OUT Outreach: The important role of home economics in European countries</b>
Chair	<b>Leena Savisalo</b>
Presenters	<b>Leena Savisalo</b> (IFHE PC chair, Outreach to central and eastern European countries) <b>Irena Simcic</b> (National Education Institute of the Republic of Slovenia)

Home economics has an important role in supporting nearly all of the UN Millennium Development Goals. Our workshop will discuss and present ideas and successful models exemplified by the Slovenian experience. The workshop will focus on four pillars:

- Education
- Healthy lifestyle
- Information Communication Technology (ICT)
- Financial literacy

All four of these pillars are supported by home economics. A strong example of this is the provision of school meals and snacks for children and young people, which is important for many reasons: health, education, culture, local agriculture, ecology, social equality and family finance. The training of educators through ICT is to be encouraged, as is early education in financial literacy through home economics. All such examples and strategies contribute to the sustainability of home economics; for a successful, sustainable future it is important to be supported by national, international and intersectoral experts, authorities and politicians.

## Concurrent sessions

Room 101	<b>CSD 5 Sustainable development: community knowledge and attitudes</b>
Chair	<b>Sandra Poirier</b>

168	<b>Do multi-level country-of-origin designations matter for consumers' perceptions of the sustainability impact of textile and apparel products?</b>	
Lead author	<b>Jung Ha-Brookshire</b> (University of Missouri)	United States

**Aim**

Fibres, textiles, accessories and other raw materials are produced in various countries and transported to other countries to be assembled into a final product (Binkley 2010). As a result, a significant portion of apparel products in today's marketplace are multinational (or products with more than one country of origin); yet consumers have little information on the extent to which apparel products are manufactured in many different countries. The lack of the detailed country of origin (COO) information has increasingly become unsatisfactory to today's consumers. Today's consumers are ever more interested in COO as they are concerned with local economies and/or sustainable community development (Bhaduri & Ha-Brookshire 2011). Given COO has become an important cue for today's consumers' purchase preferences, the study examined the relationship between COO, consumer purchase preferences, and perceived price.

**Method**

The study employed a 2x2 randomised block, repeated measure experimental research, using the United States and China as country of parts or fibres (COP) and country of manufacturing (COM) of a hypothetical apparel product. A total of 76 US adults have participated in this study. Repeated measure analysis of variance was employed.

**Results**

The results supported declaring COP and COP matters to US consumers as they form different preferences and prices. US consumers seemed to value the apparel product made in the United States with US cotton so much that they thought such a product would be almost twice as expensive as the product made in China with Chinese cotton. Particularly, when consumers had information about Chinese raw materials for US-made apparel, they significantly undervalued the product and showed lower preferences, compared to US-made apparel with US cotton. Similarly, when consumers knew that Chinese-made products had US raw materials, their preferences and perceived price were increased. However, although consumers may believe domestic fibres or domestic manufacturing are important for overall sustainability efforts, consumers perceive those products to be too expensive and, thus, such products were less likely to be preferred. This finding showed the strong power of price as a moderator of purchase preferences and supported the notion that price and social responsibility value of US-made products may not be compensatory.

**Conclusion**

US textile and apparel businesses and policy makers may want to consider requiring COP in addition to COM for apparel products. Consumers have right to know COP as well as COM so they could make the right decisions for their sustainability values.

175	<b>Developing capacity for sustainable futures: Critical analysis and evidence-based policy</b>	
Lead author	<b>Carol Anderson</b>	United States

Sustainable futures for individuals, families and communities depend on evidence-based policy decisions. The adequate provision of basic human needs from holistic and synergistic perspectives is a critical component of home economics and a responsibility of government. Policies, laws and regulations should establish frameworks for action that supports the wellbeing of individuals, families and communities. Evidence-based knowledge is an essential ingredient in the analysis of policy issues. This presentation will focus on developing capacities and highlight a policy analysis tool that has been used to critically analyse local, state, and national issues. This tool is the Five I's Policy Analysis Organising

Tool and examines information, issues, impacts, implications, and imperatives. Additionally, procedures for making evidence-based policy decisions will be reviewed and incorporated into the analysis. Attention will be directed to programs such as education and public health, and examining evidence which yields the greatest benefit for the cost. Evidence-based, cost-effective and innovative programs that improve the outcomes for individuals, families and communities are possible when professional capacity is expanded and supported. Professionals can then become valued contributors in the policy process.

270	<b>Consumers' knowledge and attitudes towards sustainable housing in Malaysia</b>	
Lead author	<b>Elistina Abu Bakar</b> (University Putra Malaysia)	Malaysia
Co-authors	<b>Askiah Jamaluddin</b> (University Putra Malaysia) <b>Husniyah Abd Rahim</b> (University Putra Malaysia) <b>Zuroni Md Jusoh</b> (University Putra Malaysia) <b>Roziah Mohd Rasdi</b> (University Putra Malaysia)	

In Malaysia, the concept of sustainable housing was introduced in 2005. Recently, the Malaysian government has been trying to focus more on this concept. It is consistent with the increasing awareness in Malaysian society of the importance of sustainable development. This study sought to examine the knowledge and attitudes among Malaysian consumers regarding the concept of sustainable housing. A total of 400 respondents were selected through a multi-stage random sampling and data were collected using self-administered questionnaire. Four states in Peninsular Malaysia, namely Selangor, Negeri Sembilan, Pahang and Penang were chosen to represent four zones – the north, middle, east and south of Peninsular Malaysia. The findings revealed that slightly more than half the respondents (52.8%) knew the existence of the sustainable housing concept and their knowledge related to sustainable housing features was moderate. Nevertheless, 91.8% of the respondents have positive attitudes towards sustainable housing, while only a few respondents (8.2%) had negative attitudes. This shows that the respondents can accept the concept of sustainable housing. These findings call for further research into the influencing factors that affect consumers' decision-making and their willingness to pay for sustainable houses.

494	<b>Healthy and sustainable food consumption: Terminology, synergy and actions from a consumers' perspective</b>	
Lead author	<b>Muriel Verain</b> (Wageningen University and Research Centre)	Netherlands
Co-authors	<b>Siet Sijtsema</b> (LEI, Wageningen University and Research Centre) <b>Johan Van Ophem</b> (Wageningen University and Research Centre) <b>Gerrit Antonides</b> (Wageningen University and Research Centre)	

### Aim

Consumers' perception of both health and sustainability are often studied in the food domain. Those studies suggest that overlap exists, but it is not known which aspects of sustainability are associated with health and which ones not. The aim of this study is to explore consumers' perceptions of (the synergy between) health and sustainability of food.

### Method

Three focus groups will be conducted in October 2011, with a total of 18 Dutch participants. The focus groups are aimed to give qualitative insights into what people think of when talking about healthy and sustainable food consumption, what synergy they perceive between healthy and sustainable food and what they think they can do to make their food consumption healthier and more sustainable. In addition, an online survey will be conducted in November 2011 among 400 Dutch respondents. In this survey the aim will be to find out whether the perception on the synergy between health and sustainability of food products differs between food categories such as meat, dairy and fruits.

### Results

First, results will show which aspects of sustainability are most prevalent in consumers' minds, and which terminology consumers use for these aspects. Second, insights will be gained into which sustainability aspects consumers perceive to go hand in hand with healthy food choices, and which sustainability aspects are conflicting with health. Third, results will show what kind of actions people take or do not want to take with respect to healthy and sustainable food consumption. What are their motives or barriers to certain actions? A distinction will be made between choices that

simply entail substituting food products with healthier or more sustainable alternatives (e.g. substituting beef with organic beef) and choices that entail adaptations in behavioural patterns (e.g. taking a vegetarian diet).

### Conclusion

Knowing that consumers are more involved in healthy than in sustainable food choices, the additional value of this study will consist of conclusions on the salience of different sustainability aspects. Next, conclusions on the synergy that consumers perceive between healthy and (different types of) sustainable food options will be given. And last, conclusions on the changes in product choices and in behaviours that consumers think they could make in order to consume healthier and more sustainably will be part of the paper. Those lessons learned will be applied in a follow-up food-lifestyle segmentation study. Implications for interventions and product innovations will be discussed.

Room  
102

### EDU 13 Looking outwards: preparing students and educators for a diverse world

Chair **Kaija Turkki**

53

### Diversity among consumers: a year of study

Lead author	<b>Julia Beamish</b> (Virginia Tech)	United States
Co-authors	<b>Doris Kincade</b> (Virginia Tech) <b>Sophia Anong</b> (University of Georgia)	

### Aim

Helping college students appreciate the uniqueness of individuals and families interacting with services and markets was the goal of a year-long program focusing on diversity among consumers. The funded program was planned to enhance and subsequently evaluate students' awareness and understanding of diverse consumers and to build capacity among students to work professionally with a wide range of people. The program's objectives were to: 1. assist students in being aware of consumer diversity and competent in dealing with these consumers across several home economics disciplines; 2. prepare students to work with diverse colleagues; 3. highlight scholarship on diverse consumers; and 4. provide a cohesive theme that was relevant to the department's disciplines: apparel, housing, and consumer studies. Both departmental-wide and course-specific activities were held throughout the 2009–2010 academic year, including: nine oral presentations by guest speakers from industry, alumni, and faculty members; two gallery exhibits, one highlighting global traditions and the other on diversity-oriented class projects; and a Kick-Off and a Wrap-Up symposium. Presentations and class project topics highlighted issues, such as generational differences, universal design, multicultural experiences, low-income consumers, and corporate diversity training.

### Method

Throughout the year, feedback from participants was obtained. In one class students were asked to define diversity before and after attending any event. In six classes students had to attend at least two presentations and submit reaction papers. Notes from student roundtable discussions at the Wrap-Up Symposium were also collected. In a follow-up online survey, faculty provided their perspectives on the impact and design of the program. Content analysis examined the qualitative data and evaluated the impact of the program.

### Results

Five themes emerged from the data. First, the definition of diversity expanded for participants during the year. Second, increased awareness of diversity shifted participants' perspectives about their discipline and diversity's global applications. Third, the importance of diversity became evident to participants. Fourth, a consensus in the feedback confirmed that there is no 'average' consumer group. Finally, participants recognised that diversity is the new norm but felt more efforts were needed to embrace diversity as an asset rather than a challenge.

### Conclusion

Multiple perspectives presented during the year long program by guest speakers, faculty, and students from several disciplines and cultural backgrounds enhanced participants' awareness and understanding of diversity. In order to produce competent and innovative home economics professionals in a diverse global environment, educators should creatively incorporate and highlight diversity sensitivity into their programs.



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## Home economics as citizenship education: The creative challenge of curriculum and practice

Lead author

**Noriko Arai** (University of Fukui)

Japan

### Aim

Since the 1990s, citizenship education has increasingly come to assume a central role in the mainstream of the educational revolution in Europe, the US and other countries, including Japan, because of nations' and societies' requirements of democracy, sustainable development and peace at the national and global levels. At the end of the 20th Century, citizenship especially focused on consumer and sustainable development and thus acquired a new name: consumer citizenship. In light of this development, how does home economics relate to citizenship education on both theoretical and practical levels, and what are the possibilities for home economics, as a school subject, to nurture citizenship among students? There has not been a great deal of research and discussion so far on citizenship curriculum theory, curriculum design, and actual analysis of lesson practice based on theoretical framework in home economics. This paper discusses how home economics can meet the challenge of providing citizenship learning through various type of curriculum and practice.

### Method

First, the theoretical framework of home economics as citizenship education is discussed in view of the following three aspects: the IFHE position statement, the US practical reasoning theory, and some Japanese HE curriculum frameworks. Second, the required competencies which bring citizenship into play are analysed. Third, the aspects and contents of citizenship learning in home economics are investigated, and creative lesson practices in home economics which nurture citizenship literacy among students are researched.

### Findings and discussion

All three of the curriculum theories show that home economics is a subject which makes students examine their lives, from the private sphere to the public, identify their problems, and try to solve them, meaning that home economics is a subject that can empower problem-solving literacy within students to improve their wellbeing. All these features indicate that home economics is one of the core school subjects which can develop citizenship literacy among students. The competencies required for citizenship can fit into three categories: consciousness, knowledge and skills, all of which are closely related to each other. Analysis of teachers' creative lesson practices revealed three key points in designing lessons: 1. making a learning structure which entails perspectives ranging from oneself/family to the wider community/society; 2. organising collaborative learning in which students can share new knowledge and findings; 3. making a learning path for improving students' decision-making and critical literacy.

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## Towards culturally responsive home economics teacher education: Visual learning games in home economics education

Lead author

**Hille Janhonen-Abuquah** (University of Helsinki)

Finland

Co-authors

**Päivi Palojoki** (University of Helsinki)  
**Hanna Posti-Ahokas** (University of Helsinki)  
**Elina Lehtomäki** (University of Jyväskylä)

### Aim

Working in the increasingly multicultural environment requires new knowledge and skills from all teachers. In Finland, the generation now in teacher training has lived life in a rather monocultural society but when entering working life they will face culturally diverse classrooms. During teacher training it is thus important in building future teachers' knowledge and skills not only to understand the cultural heterogeneity in the classroom but also to act meaningfully in classroom situations and in cooperation with the parents. Finnish teacher students in home economics are provided a training module 'Home economics in a multicultural society' with the aim of preparing them for the challenges and opportunities brought by cultural diversity in their future work. As a part of the training module, home economics student teachers carried out a project with home economics pupils in comprehensive schools. The project had three aims. Firstly, to help university students to get to know the pupils well and to understand pupils' everyday life from their perspective. Secondly, to develop a research tool that could be used in various cultural contexts. The tool should be at the same time empowering for the informants but also provide meaningful research data. Thirdly, the aim was to collect data that portrays the future orientations of immigrant youth.

**Method**

To overcome cultural and language barriers, visual learning games were developed by the student teachers to enable and encourage them to learn about the everyday life pupils live. Through playing the game, students were in face-to-face interaction with the pupils and got personal information directly from the pupils. The background information and data obtained through playing the game was entered into a database for processing and analysis.

**Findings**

The data portrays the uniqueness of each pupil, including their everyday realities and future visions, in a visual way. The data gives detailed accounts of how interaction is formulated in multicultural encounters.

**Conclusion**

The research gives tools for improving training of future home economics teachers, both by providing the learning games as concrete training tools and by increasing understanding on multicultural encounters within home economics classrooms. The findings encourage using these learning games in teacher training and as a research tool in versatile contexts. In future, the games could be used in studying pupils' individual experiences in education and their transitions along their educational paths.

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**'Nourish' a community near and far**

Lead author

**Jane Norton** (Eltham College of Education)

Australia

The earth shook, a seed was planted and connections with a community on the other side of the world grew stronger. Without being able to go to Haiti after a severe earthquake hit, a small group of concerned teachers, students and parents wanted to make a difference. That seed produced more than a fundraising cookbook and more than a collection of recipes: it grew and connected a community. As a result, Nourish: Eltham College Community Cookbook was born and funds were raised to build a classroom in a 'green school' in La Gonave, Haiti, with the provision of a teacher. Back at Eltham College, students ranging in age from three to adulthood, teachers, parents, grandparents and school supporters came together to share understandings and celebrate learning under the principles of the recently adopted values: Earth Care, People Care, Fair Share. Learning experiences from across the school, through from Kindergarten to year 12, were documented and showcased. Students developed recipes, while families submitted their favourites and through the associated stories, shared a body of knowledge for future learning. Artist, photographer, writer, on-location assistant, proofreader, sponsorship driver, marketer extraordinaire: the roles were many and the team was diverse and generations wide. As people and communities move beyond being more aware, to becoming increasingly proactive and positive rather than overwhelmed, Nourish is a demonstration of developing capacities for sustainable futures by exploring Earth Care, People Care and Fair Share. Through this paper the audience will gain an understanding of the Nourish project, how it could be adapted for use in communities and schools across the globe and how the resulting book has transformed into a valued teaching resource.

Room  
104**HEA 6 Programs and interventions for childhood health and nutrition**

Chair

**Moemoe Soti**

72

**The influence of kindergarten teachers on the nutrition situation – Using the example of four kindergartens in Fulda/Germany**

Lead author

**Barbara Freytag-Leyer** (Fulda University of Applied Sciences)

Germany

Co-authors

**Verena Bauer** (Bundesamt für Verbraucherschutz und Lebensmittelsicherheit)

In early childhood health, nutrition as well as social behaviour patterns are built, determining the lifetime behaviour of children. This is significantly influenced by kindergartens as about 90 per cent of the children between three to six years visit a kindergarten in Germany. Thus, besides the social determinants a positive influence on the health and

nutrition behaviour in early childhood has a positive impact on the human healthiness. To ensure this, a variety of projects and activities focusing mainly on nutritional knowledge exist in German kindergartens. However, to date an evaluation of these activities and consequently a generally accepted, unified strategy are missing. To fill this gap, a qualitative study was conducted aiming at the determination of potential scopes for action and recommendations for kindergarten teachers with regard to nutrition. This study is the first step of an European partnership project 'Nutgecs' – a nutrition guide for early childhood active stakeholder – within the Leonardo da Vinci lifelong learning program from 2010–2012. Partners are universities from Austria, Germany, Latvia, Romania und Turkey. Within Germany, kindergarten teachers in four kindergartens were questioned using a guideline containing half-structured questions. The kindergartens are characterised by a high percentage of children with a migrant background. Two kindergartens are owned by the municipal government, one by the Catholic church and one by the Protestant church. All kindergartens provide a catered lunch. The transcribed data were analysed applying the method for qualitative content analysis of Mayring. The results show that compared to the social strengthening of the children the nutrition education has a low priority. Although, the teachers are aware of the importance of healthy nutrition behaviour they do not have enough time to foster this issue. This is due to scarce financial resources and staff. Additionally, teachers hardly use external knowledge as stimulation for own nutrition projects. Thus, the following conclusions were drawn: nutrition education should be part of the everyday life in the kindergarten. Reasonable material has to be provided, to better sensitise and motivate teachers for nutrition themes. To cope with missing resources the nutrition education should be supported by cooperating with nutrition experts. Furthermore, rules that are clear and easy to implement should be set up both by parents and teachers. It is important to strengthen the links between an active and participative workplace with parents and to reach out to socially disadvantaged families, and work towards overcoming language barriers.

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### Impact evaluation of the Kids in the Kitchen school-based health promotion program

Lead author

**Barbara Ritchie** (Chancellor State College, Queensland)

Australia

#### Aim

Children's fruit and vegetable (FV) consumption is below levels recommended for optimal growth, development, health and wellbeing. Students' self efficacy in food preparation is a recognised determinant of their FV consumption. There are few studies, however, that examine the impact of health promotion programs aiming to increase FV consumption. Kids in the Kitchen engages children in the preparation of snacks and meals. This study evaluates the impact of this program on participants' knowledge of, attitudes towards and consumption of FV, their skills in preparing FV and the environmental supports for FV consumption.

#### Methods

Participants (n = 118) included 70 Grade 1 students and 48 Grade 5 students from one school on the Sunshine Coast in Queensland, Australia. Impact evaluation data were collected through questionnaires and a skills audit. The Related-Samples Wilcoxon Test was used to determine differences in participants' knowledge, attitudes, consumption preparation skills and environmental supports before and after the program. The Independent-Samples Mann-Whitney U Test was used to identify differences based on participants' grade and gender. Pearson's Chi-Square Test was used to explore participants' willingness to try new fruits and vegetables and other environmental and behavioural factors.

#### Results

There were significant increases in knowledge of FV, willingness to try new FV, consumption of FV, and confidence and skill levels in the preparation of FV for consumption. Attitudes towards trying new FV were associated with availability of FV at home and encouragement from parents to eat FV.

#### Conclusion

Children's FV consumption is below recommended levels. School-based health promotion programs that focus on improving children's self efficacy in FV preparation may provide an opportunity to increase FV consumption.

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### School feeding program for underweight pupils: The ISPSC experience

Lead author

**Anna Marie Barroga** (Ilocos Sur Polytechnic State College)

Philippines

Promoting and protecting the health of students is a role of the school that requires the provision of a wide range of healthful services. Schools are responsible for providing a safe and healthful environment that optimises opportunities for learning and growth. School food services should reinforce healthful eating behaviour by serving meals and snacks that are based on the dietary guidelines, food pyramid and provide a variety of healthful food choices. A school feeding program is one way of providing such service. The program will not only provide nutritionally adequate meals to the pupils, it will at the same time promote partnership between the parents and the school and will also create awareness of the importance of proper food habits and good nutrition. The Ilocos Sur Polytechnic State College, Santa Maria Campus, The Philippines, established the School Feeding Program Pilot Project at Babal-lasioan Elementary School. The project aimed to evaluate the effect of the feeding program on the weight of the beneficiaries for a period of six months. It also aimed to gather feedback and information regarding the school performance of the participants in terms of attendance and class participation and also to conduct an information dissemination drive on proper health care and nutrition of school children. The initial activity of the project was the weighing of the participants to get the Body Mass Index (BMI) of the pupils. There were 24 total participants composed of 16 males and 8 female grade 1 pupils aged 6 and 7 and one pupil aged 9. The participants were considered underweight with a mean weight score of 15.88 kilograms. Early positive observations were noted within the first month of implementation. These included the alertness of participants as well as regular and punctual attendance to classes. The social development of the pupils was enhanced which was attributed to the regular visitation of the program implementers. More positive observations are expected especially on the weight gain of the participants, expected to rise to a mean weight score of 17.35 kilograms or a gain weight of an average of 2 kilograms per pupil. Indications on the positive effect of the information dissemination drive on proper health care and nutrition is very much evident as mothers are now having menu plans for the meals of their families.

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### Alola Foundation's nutrition and health promotion activities in Timor-Leste

Lead author

**Maria Imaculada Guterres** (Alola Foundation)

Timor-Leste (East Timor)

The Alola Foundation (Fundasaun Alola) was established in March 2001 with the initial aim to raise awareness locally and internationally on the issue of gender-based violence as experienced by the women of Timor-Leste in 1999. Alola Foundation is a national and local NGO working in the area of maternal and child health, education, economic development and advocacy. The maternal and child health program of Alola Foundation undertakes four main programs: mother support groups and community friendly villages, a maternity packs program and a newborn care program. The Alola maternal and child health objective is to contribute to the reduction of maternal and child mortality through promotion of better health for women and children in Timor Leste. The breastfeeding promotion program was established by Fundasaun Alola in order to respond to the low prevalence of exclusive breastfeeding in 2003 which was shown by the Demographic Health Survey (DHS 2003) that exclusive breastfeeding averaged only 1.4 months, which is below the WHO's recommendation for 6 months. To respond to this situation The Alola Foundation established the National Breastfeeding Association (NBFA) in 2003 to promote appropriate breastfeeding practices throughout the country and set up Mother Support Groups (MSG). MSG are made up of trained community volunteers who provide one-on-one counselling on Infant and Young Child Feeding (IYCF: breastfeeding and complementary feeding) and basic safe motherhood to the mothers in their neighborhoods and at nearby health facilities. The member also facilitates mini workshops, breastfeeding film shows and monthly community group discussions that include cooking demonstrations to teach parents about indigenous and appropriate foods for children in rural areas. As of 2011, there are 73 Mother Support Groups working in ten of Timor Leste's 13 districts with a total of over 1000 people. They work across the country to improve women's health and improve infant and young child feeding practices thus reducing malnutrition in Timor Leste. The effectiveness of their work in promoting good infant feeding across the country is reflected in the DHS survey 2009–2010 which reported that the rate of exclusive breastfeeding is 51.5 per cent, a huge increase from the DHS survey 2003 in which the rate was only 30.7 per cent. Alola Foundation has a strong reputation and skills on leading and delivering IYCF training for health workers and community health volunteers in supporting the MoH to achieve optimal infant and young child feeding practices across the country.

Room  
105**EDU 14 Building links between school and community**Chair **Yukiko Kudo**

46

**Family and consumer scientists use social network analysis to visualise the development and sustainability of community capacity**

Lead author	<b>Peggy Meszaros</b> (Virginia Tech)	United States
Co-authors	<b>Elizabeth Creamer</b> (Virginia Tech) <b>Sandra Schneider</b> (Virginia Tech)	

**Aim**

The goal of the Appalachian Information Technology Extension Service (AITES) project is to increase girls' interest in jobs requiring Information technology (IT) skills through the development of community capacity. Family and Consumer Science (FCS) Extension agents are key in developing community capacity through delivering workshops to parents and other community members in 10 Appalachian communities.

**Method**

This five-year project is funded by the National Science Foundation and uses a cooperative extension model of train-the-trainer workshops as well as an infrastructure with University Content Specialists, State Partner Boards made up of principals and superintendents, IT industry, community leaders, and trainers/consultants in each of the five Appalachian states of Virginia, Kentucky, Tennessee, North Carolina and West Virginia. Annual workshops taught by the content specialists allow FCS Agents to plan mini-grant activities that are funded up to \$500. They build community capacity with parents and other community members as they deliver the new content about overcoming gender stereotyping, the range of IT jobs in the community, and effective support strategies for females to parent groups who in turn share information about IT skills and jobs to parent groups and with their own daughters. Social Network Analysis (SNA) is the research tool used as an additional lens and triangulated with all other evaluation data to visualise the many vehicles and routes taken in building this community capacity as well as identifying best practices and appropriate course corrections for sustainability.

**Results**

Key projects have resulted in reaching over 7500 individuals as well as providing opportunities to reach teachers and school counselors, 4H and home schooling parents that represent new audiences for FCS Agents. Visual depictions of the outreach by FCS agents using SNA are key to identifying effective resources, transfer mechanisms and contact and collaboration between FCS Agents and the parents and community members they are reaching. We identify two illustrative case studies of how FCS Agents have served to be key linchpins in providing access to target parents and alternative-schooling audiences found to be unreachable for teachers, counselors and other community members as well as Extension resources, community facilities, fairs and expos that provide great access to the communities served.

**Conclusion**

Social network analysis is a powerful tool to illustrate the reach of FCS Extension agents and the critical role they play through their local social networks which indicates their integral role in sustaining community capacity.

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**e-livelihood skills program: An expanded school initiated intervention for students at risk of dropping out**

Lead author	<b>Jenilyn Rose Corpuz</b> (PAHESCU and ARAHE)	Philippines
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The Philippine Education For All (EFA) 2015 is developed to improve the quality of basic education for every Filipino by 2015. One of its specific aims is universal school participation and elimination of drop-outs and repetition. Several approaches and efforts such as alternative learning systems (ALS) are initiated by the Department of Education to allow the students at-risk to complete basic education, mostly outside of a formal school system. However, not all students at-risk of dropping out (SARDO) can certainly be catered by ALS more so that the SARDO are in-school, hence the need

of school initiated intervention. One pressing concern of Ismael Mathay Senior High School for the past school years among fourth year students are low graduation rate, and high failure and drop-out rates. The following were identified at-risk factors of failing or dropping out as per report of teachers: poor communication skills; low comprehension skills; low self-esteem; poor family support; unmotivated and negative attitude; and poor sense of responsibility. The e-Livelihood Skills Program (e-LSP) is an expanded school-initiated intervention offered to students who are at risk of dropping out from the opportunity to learn in a self-phased and supervised program. A variety of value-based life skills were integrated as support in the achievement of their Individualised Goal Plan (IGP). The life-skills training included: job/entrepreneurial-skills training; interest-skills training; drug and alcohol recovery forum; community service; and behaviour modification workshop (integration of theory of constraints for education tools). Specifically, e-LSP focused in helping transform negative and unhelpful behaviour and raised self-esteem, in addition to gaining coping skills that facilitate the achievement of academic requirements. The livelihood skills training hosted by the Home Economics Department was an effective strategy that motivated the students to finish high school. Significant results of the project include: higher graduation rate and achievement level, lower dropout rate, and more notable is improved self-efficacy and better attitude towards work and life.

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### Innovative partnerships between Australian dairy industry, teachers and schools: Technical skills, nutrition and careers

Lead author **Mani Iyer** (Dairy Australia)

Australia

Australia's dairy industry is the third largest primary industry, manufacturing products worth AUS\$9 billion. Since 2001 the industry has had important partnerships with primary and secondary schools covering various aspects of the dairy supply chain. In 2011 the dairy manufacturing industry developed innovative partnerships with selected schools in raising technical skills, nutrition knowledge and career awareness of students and teachers. Under the 'Cows Create Careers' project, an innovative program titled 'Camembert in Classroom' was launched in 2011. Eight schools in Victoria and six in NSW participated in the program across three regions. The first stage involved an Australian cheese expert training 28 teachers across three regions in the manufacture of camembert cheese. In the second stage, the teachers trained 204 secondary school students in years 9–11 in their schools and made several batches of camembert cheese in the classroom during a school term. The students managed the maturation of the cheese over 5–8 weeks. The students and teachers also received training in food hygiene through a comprehensive food safety plan approved by Dairy Food Safety Victoria. During the manufacturing and maturation steps, the cheese expert was available online to assist, if needed. At the end of the school term, the matured cheeses were judged by an expert panel. In groups of 2–3, students also submitted a short multimedia advertisement on the nutritional aspects of milk and dairy products. The best cheeses and multimedia advertisements received prizes at a gala presentation day in each region. Overall, students and teachers were very enthusiastic because the project provided them with new skills as well as knowledge of nutrition. Most of the schools and teachers are keen to continue the program in 2012 and will embed it into the school curriculum. There has been good coverage of the program via television and print media. Other related programs for secondary schools involve industry visits to dairy manufacturing factories and sessions with senior factory managers on career options. Overall, the 'Camembert in Classroom' program has shown that innovative partnerships between industry, schools and teachers can upskill students and teachers in a healthy learning environment with lifelong learnings on nutrition, health and food hygiene. There are plans to expand the program in 2012 and offer it to schools in selected regions Australia wide by 2013–2014.

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### The high school created by local community

Lead author **Leena Käyhkö** (University of Helsinki)

Finland

The objective of the study is to question the meaning of entrepreneurship as a learning challenge and form of agency. The paper examines the case of a high school in Finland, founded 20 years ago. The school was from the beginning built to provide a learning environment which supports the formation of entrepreneurship and agency among the students by means of community oriented projects such as annual municipal fairs organised by the students. The study examines learning at two levels: (1) How have the community and its different actors learned to construct and maintain a new type of school? (2) What kinds of learning processes have taken place among the students and teachers as they have dealt with the challenges of conducting entrepreneurship projects? The study uses and develops cultural-historical activity theory in analysing agency as object-oriented collective achievement, and entrepreneurship as a particular historical form of agency. I divide the historical development of the school into five phases, each characterised by particular changes in the object and in the network of involved activity systems and actors. The data consists of:

historical documents; interviews with central actors of the school, the municipality and local entrepreneurs; videotapes and ethnographic fieldnotes covering students' work in organising the municipal fairs from 2004 to 2006; and students' written reports. This paper will focus on how the community and its different actors learned to construct the school. The detailed preanalysis of the paper will show how the change of object affects the history and future of the school and its constructs and how difficult it is to create an objective in common.

Room  
111

## HTS 4 Laundry technology

Chair **Rainer Stamminger**

92

## Modelling of the washing performance of domestic washing machines

Lead author **Emir Lasic** (University of Bonn)

Germany

Co-author **Stefan Dodel** (University of Bonn)

### Aim

Laundry washing is one of the oldest domestic activities, which is today done by using a washing machine. The main task of those household appliances is to provide hygienically clean laundry and to preserve its value. This so-called washing performance is a function of different factors including; washing temperature, length of washing cycle, type and amount of detergent and applied mechanical work. Each of these factors can be substituted to a certain degree by the other three factors. On the European market the average washer capacity has increased from 4.8 kg in 1997 up to 5.4 kg in 2005 (CECED 2005). On the other hand, the consumers do not use the full capacity of their washer. At present the average washer load size in Europe is at 3.0 kg (P&G 2010). Taking into account those two trends the question rises, how should the new washer with the larger loading capacity be used in order to act in a sustainable manner? The water temperature, detergent used, time (length of cycle) and mechanical work are all factors when considering the optimal use of a washing machine.

### Method

In order to develop a model four washer with loading capacity of 5kg, 6 kg, 7kg and 8 kg, were tested according to the IEC 60456 standard with some additional modifications. The first modification was inclusion of the washing temperature to 40°C and 30°C. The second modification was the variation of the nominal amount of the detergent, resulting in using 50%, 100% and 150% of the nominal detergent amount. Finally, the third modification of the IEC standard was the variation of the washing machine loading by testing the loads of 25%, 50%, 75% and 100% of the load capacity. During the test the energy and water consumption and washing time at different stages of the washing process were measured. The washing performance was measured in terms of reflectance ratios of soiled test strips at the end of the washing cycle.

### Results

As the research process is not finished at the time of the abstract submission, the author expects to provide the following answers by the time the full paper is presented: the influence of the variation of the amount of detergent in combination with different temperatures and washing machine load capacity resulted in washing performance improvement; there are possible trade-offs between detergent dosage, temperature variation and washing machine load by maintaining the washing performance at the same level.

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## Water, energy and soil removal efficiency of a top and a front loader washing machine

Lead author	<b>Hester Steyn</b> (University of the Free State)	South Africa
Co-author	<b>Kgalalelo Seiphethheng</b> (University of the Free State)	

### Aim

The aim of the research project was to determine the water, energy and soil removal efficiency of a top and a front loader washing machine. Water and energy conservation are important issues in the quest for more environment friendly household practices. The literature indicates that top loaders use less electricity but more water and front loaders use less water but more energy. However, efficient soil removal is the main concern of the consumer.

### Method

An 8.0kg capacity top loader and an 8.5kg capacity front loader of the same manufacturer were purchased. The 'daily wash program' and the 'quick wash program' of both machines were selected as wash programs for the project. Cold wash (20°C) was used for the top loader and 20°C, 40°C and 60°C for the front loader. A 5kg load with three samples of C-09 cotton (soiled with pigment oil, purchased from CFT) and cotton filler was used for each wash cycle and each cycle repeated three times. Sixty-gram non-phosphate ECE reference detergent without optical brightener was used. The drained water was collected and measured. The energy consumption was measured in watt/hour. The soil removal was measured with a colorimeter in CIE L\*a\*b\* colour scale (AATCC test method 61-2010). An analysis of variance was used to aid in the interpretation of the data.

### Results

- The top loader used more water than the front loader and it used more water for the daily wash than for the quick wash.
- The front loader used more energy than the top loader even at 20°C. The front loader used more energy for the daily wash than for the quick wash.
- At 20°C the front loader was more efficient in soil removal than the top loader in both the daily and the quick wash programs.
- The daily wash program of each machine was more efficient in soil removal than the quick wash program.
- At 20°C the daily wash was more efficient in soil removal than the quick wash program but at 60°C there was not a difference. The best soil removal was observed at 60°C.

### Conclusion

The front loader washing machine is more efficient in soil removal and it uses less water but it uses more energy than the top loader machine.

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## The influence of catholyte as a detergent on the tearing strength and abrasion resistance of cotton, polyester, and polyester/cotton blend

Lead author	<b>Sonia Van Zyl</b> (University of the Free State)	South Africa
Co-authors	<b>Robert Schall</b> (University of the Free State) <b>Hester Steyn</b> (University of the Free State)	

### Aim

The environmental impact of the use of complex phosphate laundry detergents is a global wide concern due to their role in eutrophication of waterways. Catholyte is a potential sustainable alternative detergent. It does have a high pH >10, which is necessary for efficient soil removal, it is non toxic and readily disposable. Tests were carried out to determine the influence of catholyte on the tearing strength and abrasion resistance of cotton, polyester, and polyester/cotton blend



**Methods and results**

Soiled cotton, polyester and polyester/cotton blend were laundered with standard phosphate detergent, catholyte and a 50/50 mixture of detergent and catholyte respectively according to the AATCC 61 1975 method. The influence on tearing strength and abrasion resistance of the fabric were determined according to the ASTM D 1424-63 method.

**Conclusion**

Laundering the fabrics with catholyte had no significant effect on the tearing strength as well as on the abrasion resistance of the fabric. Therefore, catholyte can replace phosphate detergent successfully without damaging the fibres of cotton, polyester and polyester/cotton blend.

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### **Influences of the concentration, temperature and mechanical power on the washing efficiency of commercial detergents**

Lead author

**Hiromi Gocho** (Jissen Women's University)

Japan

The performances of commercial detergents may differ sometimes by 100%, depending on the washing conditions. The recipes, especially in the usage of natural or synthetic surfactants, are often emphasised. However, the efficiency in washing, the economy and the environmental load, are sometimes conflicted, which hampers consumers from the discerning selection of detergents. The present study compares the efficiencies of four commercial detergents available in the Japanese market. They are composed mainly of (1) linear alkylbenzene sulfonate(LAS), (2) (1) + polyoxyethylene alkyl ether (AE), (3) sodium salt of fatty acids, and (4) (3) + AE. Standard wet contaminated cloths distributed by Japan Washing Science Association were used. Washing tests were performed at 30–60°C with a Terg-O-Tometer of JIS standard and a Launder-O-Meter for measuring dye fastness. The reflectiveness of the clothes after being washed under respective conditions were measured with a Minolta CR-14 whiteness meter. The values were converted to K/S values of Kuvelka-Munk function, from which the washing efficiencies, DK/S values, were calculated. With Terg-O-Tometer at 30°C and under recommended usage, the washing efficiencies, the highest of which was 78%, were found to differ by ca. 30% according to the detergent species. The amounts of use were found to be able to be reduced by 10–30% without lowering the washing efficiencies at the recommended usages. By Terg-O-Tometer washing, different trends in the dependency of the efficiencies on temperature between 30–60°C were found to be: (a) almost independent at over 70%; (b) increasing by about 10% at higher temperature from 60% at 30°C; and (c) showing a maximum at 70–76% at 40°C rising from 54% at 30°C; and 60% or less at 60°C. Comparison of the performances with the two machines showed that the mechanical power exerts as high as 39% difference e. g. with detergent 2 having the best performance, in washing efficiencies. In conclusion, (1) the usage of detergent can be reduced by 10–30% without lowering the washing efficiency; (2) generally the efficiencies were highest at 40°C; and (3) mechanical power should be of primary importance for the performance.

## Cardiovascular disease (CVD) risk factors in apparently healthy adults: an age-based assessment

poster board ID 60-1-1

Country	India
Lead author	<b>Seema Puri</b> (Institute of Home Economics)
Co-author	Diya Bati (Institute of Home Economics)

### Aim

This study was undertaken to assess the presence of CVD risk factors in apparently healthy adults.

### Method

One hundred subjects (50 each from 20–40 and 41–60 years age groups) were recruited through preventive health check-up programs at leading private hospitals in Delhi. Questionnaire cum interview schedules were administered to collect information regarding their socio-demographic, lifestyle, health, dietary and stress profile. Height, weight, waist, hip circumference were recorded and BMI, WHR determined. Blood glucose and lipid profile were also recorded.

### Results

Fifty-five males and 45 females were recruited. Forty per cent (20–40 years old) and 56% (41–60 years old) were obese. Abdominal obesity was higher in the older group and among females in both groups. Most subjects were in sedentary occupations. The total energy expenditure of both groups was not significantly different. In both groups, none reported high stress, very few smoked cigarettes or chewed tobacco, some consumed alcohol. Among the middle aged group, 50% were suffering from  $\geq 1$  chronic disease as compared to only 6% in the younger group; hypertension and diabetes being most common. Elevated fasting blood glucose levels (18% vs 8%), borderline/high blood cholesterol (40% vs 12%), elevated LDL-c (70% vs 8%) and low HDL levels (22% vs 22%) were more evident in 41–60 year olds as compared to 20–40 year olds. Consumption of animal foods and sugar was more in the younger group. Mean intakes of energy, protein (13en%), fat (30en%) and carbohydrate (54en%) in both groups were not significantly different. Mean intake of cholesterol was nearly 40 mg, PUFA was 7.2en% and MUFA was 4en% in both the age groups. Saturated fat and trans fat consumption was 2.5en% and 0.2en% in the 20–40 and 41–60 year olds respectively. Of the identified 22 risk factors, 20 were present in the study population. The 41–60 year olds had a greater risk factor prevalence than the 20–40 year olds –10 factors (30% vs 0%), 7–9 risk factors (38% vs 12%), 3–7 risk factors (30% vs 62%) and 13 risk factors (2% vs 26%). The most prevalent risk factors were high BMI, abdominal obesity, low HDL levels, lack of exercise, low fruit and vegetable intake, low dietary fibre and high dietary fat.

### Conclusion

Hence, while the CVD risk factor profile increased with age, even young adults were at risk. Such multiple risk factor scenarios among the apparently healthy adult population call for effective intervention strategies and lifestyle changes.

## Developing the ideal method of after-school care in after-school measures for primary school children

poster board ID 73-1-2

Country	Japan
Lead author	<b>Ayuko Matsumoto</b> (Nara Women's University)
Co-author	Toru Nakayama (Nara Women's University)

### Aim

In recent years, nuclear families and double-income families have increased in Japan. As a result, the number of the primary school pupils who lack care in after-school has been large. Currently, many after-school activities which are intended for all primary school pupils are being sought. An 'After-School Plan for Children' was implemented by the government in 2007. For the future, it is necessary to consider what forms of 'After-School Plan for Children' can provide the places of the lives to the pupils who lack after-school childcare. In this study, I clarify two points below. And I propose the ideal method of after-school care and life in after-school measures from a relation with the after-school program for all children.

1. Actual condition of an after-school measure of a school child from a viewpoint of a local government measure.
2. Actual condition of an after-school measure of a school child from a viewpoint of the contents of activity of the field, and evaluation.

### Methods

1. The hearing investigation and local observational research to local government, the questionnaire to all the local government.
2. The questionnaire and hearing investigation to the child and instructor using a program, observational research.

### Results

Although the relation between an after-school care program and an after-school program for all children was found variously, the integrated program was systematised by eight types from positioning of the after-school-care-program function, and the cooperated program was systematised by four types from the cooperation organisation of both enterprises, and positioning of the contents of childcare. And each desirable enforcement form was also shown. Moreover, the nationwide enforcement situation has also been grasped and directivity was shown to each local government. In order for an after-school care program to serve as richer environment by relation by an after-school program for all children, the conditions of 'a high quality after-school care program', 'the activity space corresponding to the number', and 'free choice of the contents of activity' need to be fulfilled first. Next, to have 'the dense relation between a non-after-school-care-program child and instructor' is desired.

## The present situation of community activity rooms and utilisation of facilities for the elderly in Qiqihar City in China

poster board ID 86-1-3

Country	Japan
Lead author	<b>Xiumin Zhang</b> (Nara Women's University)

### Aim

The main research purpose of this paper is to examine the facilities of community activity rooms within and outside the housing estates and utilisation of these facilities by the elderly during winter and summer in Qiqihar City in the Northeastern part of China.

### Method

In September 2010, I investigated four residential housing estates (two of the activity rooms are within the housing estates while the other two are outside the housing estates), with regard to the opening hours, areas, functions etc of the activity rooms. Fifteen elderly who can take care of themselves from each housing estate are invited to take part in the study, making the total number of participants 60. The study focuses on the utilisation frequency of the activity rooms in winter and in summer and the participants' opinions on the facilities of the activity rooms.

### Results and conclusion

The results suggest that, except public holidays, the opening hours on weekdays as well as over weekends are eight hours or above. Compared with activity rooms outside housing estates, those within housing estates are much more spacious. Moreover, various special activity rooms such as billiard rooms, table tennis rooms, chess rooms and mahjong rooms are equipped. On the contrary, most of the community activity rooms outside housing estates are mahjong rooms, or they put all kinds of activities in the same room. As to utilisation of activity rooms by the elderly, there shows a higher utilisation frequency of activity rooms within housing estates. In addition, compared with summer, the utilisation frequency of activity rooms in the winter is higher. With regard to participants' views on the activity rooms, negative comments are in a comparatively more dominant role. Four fifths of respondents consider the facilities of activity rooms outside housing estates inadequate. In conclusion, when facilitating community activity rooms in future, it is suggested that aspects such as weather, utilisation convenience and facilities should be taken into consideration.

## Developing local tie-dye practice (resource) centre in Eha-Amufu community: Springboard to global creativity and Innovation

poster board ID 121-1-4

Country	Nigeria
Lead author	<b>Priscilla Nnenna Ezema</b> (Federal College of Education)

Increasing awareness of many pressing global issues and realities helps us to understand the impact of human actions on the quality of human life. Local and national communities are applying this understanding in various ways for developing capacities for sustainable futures that are both culturally appropriate and locally relevant. A wide variety of cultures around the world points to the fact that there will be many versions of the possible outlook of a sustainable future. There are also different local forms of sustainability. This research intends to survey the possibility of developing a local tie-dye practice or resource centre within the FCE Eha-Amufu Community. The centre will act as a springboard to developing young and new talents in the area of textiles design/arts for both academic and economic sustainability. Workers in the centre will also experience a sustainable quantum leap in their economic wellbeing. The project will create a vibrant local economy that gives opportunities to meaningful and rewarding work for all within the community. It will also project the college as a corporate social citizen that is accountable to the local community. The study will be a survey design made up of all the staff and students of FCE Eha-Amufu, Enugu State, Nigeria, to justify the need for the project. The cost implication of the project is also to be determined.

## The place of men in families of providing women

poster board ID 125-1-5

Country	Brazil
Lead author	<b>Sande d'Avila</b> (Federal University of Ceara)

This article presents data from research on families in which the women have the role of 'providers' in the family group. The term 'provider' is used here regarding the woman responsible for the family's subsistence. The aim of the investigation was to develop a comparative study among nuclear families, a couple with children, from two different types of social classes, the lower and the middle class, on the implications of the 'female provision' role, alone or shared with the man, husband/partner, in the daily-life family relations. Unveiling the relations within this daily-life was pursued in the approach with women and men by hearing them on how they live, feel and picture it from their own perspectives, considering that the human being participates with all aspects of their individuality and personality. The data presented and analysed resulted from semi-structured interviews with nine women from the lower class and ten women from the middle class, in both cases, married and employed; and with seven men, in the role of husbands/partners, two from the lower class and five from the middle class. The data was collected by interviews and testimonials, recorded, transcribed and analysed in a gender perspective. The men from the lower class admit the role inversion in the family; they expose their concern on the judgement from their community, by the fact of not being employed and doing household chores; they put in perspective the view of labour as a factor of recognition of the role of man in society: the man who doesn't work is seen to be lacking morals. The men from the middle class expressed feelings and behaviours of embarrassment, dependence, sadness, indifference, unwillingness, uselessness and depression for the experience of not providing or having to share it in their families. We come to conclude that the normalisation of the role of man as the family 'provider' makes it more difficult to experience other forms of family organisation, in which the man takes roles traditionally delegated to the women by society/culture.

## Childhood consumer experience and the financial literacy of college students

poster board ID 150-1-6

Country	Malaysia
Lead author	<b>Mohamad Fazli Sabri</b> (University Putra Malaysia)
Co-authors	Jariah Masud (University Putra Malaysia) Maurice MacDonald (Kansas State University) Tahira K Hira (Iowa State University)

The purpose of this study was to investigate the impact of personal and family background, academic ability, and childhood consumer experiences on the financial literacy of college students in Malaysia. The sample comprised 2519 students in eleven public and private colleges in Malaysia. Financial literacy was measured with a 25-item test of financial knowledge. On average, students answered less than half of the questions correctly. Methods of analysis included bivariate t-tests, analysis of variance, and multiple regression analysis. The childhood consumer experience of discussing family finances with parents has a substantial positive relationship with financial literacy. Students of Chinese ethnicity, who live on campus, and who attend private colleges are less likely to be financially literate.

## Continuous exercise suppresses lipid peroxidation after ingestion of docosahexaenoic acid, an active ingredient of the Japanese traditional diet

poster board ID 198-1-7

Country	Japan
Lead author	<b>Kazuhiro Kubo</b> (Gifu University)
Co-authors	Morio Saito (Institute for Health Sciences, Miki Corporation) Takashi Baba (Maruha Nichiro Holdings Inc)

### Aim

The population of Japan has the longest life expectancy in the world. However, the risk of lifestyle-related diseases among Japanese high school students is increasing, and 40% or more of them already have a degree of risk. Physical exercise and a balanced diet are central to the primary prevention of lifestyle-related disease. Recently it has been recognised that a decline in dietary intake of fish, which is a primary component of the Japanese dietary pattern, accompanied by westernisation of eating habits, may be responsible for the increased risk of lifestyle-related disease. The traditional Japanese diet, consisting mainly of rice, soybeans, and fish, has evolved as a result of local ecological factors, in view of the proximity of the sea, warm climatic conditions, and abundance of water. The primary prophylactic effect of a fish-based diet i.e. suppression of atherosclerosis and cardiovascular disease, has been attributed to n-3 polyunsaturated fatty acids such as docosahexaenoic acid (22:6n-3; DHA) and eicosapentaenoic acid. However, DHA is very vulnerable to lipid peroxidation because of its unstable chemical structure, including six double bonds. Peroxidation of lipids is associated with oxygen toxicity, causing degeneration of cell membranes, and is thus closely associated with pathogenesis. On the other hand, the efficacy of exercise against lifestyle-related disease has long been recognised. However, any increase of active oxygen species resulting from exercise would further amplify the formation of lipid peroxide after ingestion of DHA, thus having injurious effects on tissues. Therefore, we investigated the relationship between DHA ingestion and continuous exercise in young individuals.

### Method

Fifteen female students (mean (SD) age, 18.1 (0.4)) were divided into a non-Euclidean group and a Euclidean group, and supplied with dietary DHA for 28 days. In addition to usual meals, the subjects ingested DHA in the form of soft capsules (3.5g oil/day). Exercise intensity was measured using a heart rate meter and a pedometer.

### Results and discussion

Although plasma TBARS, which is a comprehensive index of lipid peroxidation, was increased after 14 days of DHA ingestion and continuous exercise, it had returned to the original level after 28 days. Continuous exercise increased the amount of Cu/Zn SOD, an antioxidant enzyme involved in the first stage of lipid peroxidation, and promoted glutathione formation after DHA ingestion. Therefore it was thought that continuous exercise suppresses the lipid peroxide formation accompanying DHA ingestion and attenuates oxidative tissue injury.

## New developments for AHP concerning the decision-making process for selecting detergents: Results from junior high school and university students

poster board ID 205-1-8

Country	Japan
Lead author	<b>Yoko Shinohara</b> (Okayama University)

Since detergents have an environmental impact, it is important that their use is accompanied by scientific understanding. Furthermore, when selecting a detergent, it is the primary goal to make those decisions through the viewpoint of ESD (Education for Sustainable Development). In this research, a new class was developed to understand a more scientific decision-making process using the AHP (Analytic Hierarchy Process) to select a detergent. The results for the junior high school and the university students are reported. During the class, students evaluated 'Detergent A' and 'Detergent B', and conducted four different experiments: the solubility of the detergent; the rinsing of the detergent; the detergent qualities; and the environmental impact. The AHP test was completed both before and after the class. They evaluated four items by selecting one of the following choices: equal importance; weak importance; strong importance; very strong importance; and absolute importance. The significance of four items and the priority of Detergent A and B were calculated from these results. The significance of four items was recorded before the class for the junior high school students: a solubility of detergent 0.12; a rinsing of detergent 0.25; detergent qualities 0.45; and the environmental impact 0.18. After the class, these were changed to the following results: solubility of detergent 0.17; rinsing of detergent 0.22; detergent qualities 0.30; and environmental impact 0.31. On the other hand, the significance for each of the selections was recorded before the class for the university students: solubility of detergent 0.14; rinsing of detergent 0.32; detergent qualities 0.35; and environmental impact 0.19 before the class. After the class the result was almost the same. The priorities of the two detergents were Detergent A 0.43 and Detergent B 0.57, and the junior high school students' results hardly changed before and after the class. The priorities of two detergents were Detergent A 0.19 and Detergent B 0.81 after the class for the university students. This class was effective in understanding the scientific decision-making process. From this lesson, the junior high school students understood that an 'environmental impact' was an important factor when selecting a detergent. In conclusion, because in the prioritising of the detergents, the junior high school students' formation of scientific recognition was insufficient, it was clarified that the content of the ESD class must be adapted to the junior high school students' developmental stage.

### A study of education in food preservation in home economics in schools: Sustainable food life

poster board ID 212-1-9

Country	Japan
Lead author	<b>Rie Imoto</b> (Kagawa Nutrition University)
Co-author	Keiko Semba (Kagawa Nutrition University)

#### Aim

It is necessary for consumers to consider the whole life, or cycle, of food, including production, transportation, preservation, cooking methods and disposal methods, based on the LCA (Life Cycle Assessment) for sustainable food life. However, according to studies on the composition of kitchen refuse, 38% was leftovers and 11% was untouched food. One possible reason for this is that people do not know how to preserve food and do not actually preserve food correctly. Another possible reason is that people have not learned how to preserve food correctly at school. This study has the following three objectives: 1. To clarify how much scientific knowledge and practical skills in food preservation are taught in home economics in junior and senior high school; 2. To analyse the relationship between knowledge of food preservation and the practical skills used in daily life, based on studying university students; 3. To clarify problems in Japanese education regarding food preservation in comparison to such education in England.

#### Methods

Analyse the content on the topic of food preservation in Japan's new National Curriculum and eleven textbooks. Analyse a questionnaire completed by 160 university students. Analyse national curriculum and food technology textbooks in England and compare with Japanese ones.

#### Results and discussion

In the national curriculum in Japan, we cannot find the expression 'food preservation'; however, the guidelines include the meaning of food preservation. In textbooks, we find the theory of food preservation, as well as and the temperature of each compartment in the refrigerator and the freezer, and the appropriate drawer for each food was illustrated. However, concrete practical methods of preservation of each food were not found. And there was no description of the relationship between food preservation and kitchen refuse. Thirty-nine of the university students (33% of 160 people) answered that they learned how to preserve food. Of the 39 people, 31 people 'learned in home economics in school'. Most of the people whose preserving methods were inappropriate did not have any learning experience about food preservation. In the program of study at key stage 3 in Food Technology in the National Curriculum in England, there is the guideline with an emphasis on a broad range of practical cooking tasks. In textbooks in England, concrete practical methods and their reasons are written in detail. Such practical descriptions are critically needed in Japan.

### Changes of living spaces by the settling of the Mongolian pastoralists in Inner Mongolia Autonomous Region, China

poster board ID 222-1-10

Country	Japan
Lead author	<b>Rie Nomura</b> (Hokkaido University)
Co-author	Toru Nakayama (Nara Women's University)

#### Aim

In Inner Mongolia Autonomous Region, China, Mongolian people have lived a nomadic life for a long time and have established their own lifestyle. The settling of these pastoral nomads is, however, gradually proceeding since the development of farming or the modernisation through the socialism system. The purpose of this study is to clarify the changing process of living spaces by the settling and the reasons for such a process focusing on the Mongolian pastoralists. Houses, residential camps and pasturelands are comprehensively analyzed and all of them are categorised as elements for living spaces for pastoralists.

#### Method

The author implemented interviews with pastoralists and actual measurement surveys of houses in the north area where they still use Ger to conduct mobile pastoralism and in the south area where they form settlements.

#### Findings

The three primary findings, in so far as changing processes of living spaces in the mobile pastoralism area, are as follows: 1. With the dissolution of the people's commune in 1982, residential groups, which had repeatedly gathered and dissolved, fixed in the state of dissolution with each household unit; 2. With the introduction of the stabilised residences, they came to need a second house when they move. Although one household used to live in one residence, even one household now has a tendency to live separately after the settling; 3. Cattle breeding management has been diversified due to the distribution of pasturelands. Travel distances sometimes become longer because of the borrowing and lending of pasturelands, commission of cattle, and so on. The three primary findings in so far as changing processes of living spaces in the settlement area are as follows: 1. Residential groups are fixed in the state of gathering partly because of the transition of property rights to the residential groups; 2. Although pasturelands officially belong to each household, they share the lands without determining the explicit borderlines in order to make efficient use of the narrow lands; 3. It is anticipated that the living spaces in the settlements will come closer to urban residences because the infrastructure of the settlement formation will affect the room layout, equipment, construction method of each house.

#### Conclusion

It was revealed that how to distribute the pasturelands has a huge impact on the elements for the changing of living spaces. The distribution method diversifies cattle breeding systems through different distance and frequency of transport. It also affects the living style.

## The innovation of high school home economics curriculum in Taiwan (1990–2010)

poster board ID 223-1-11

Country	Taiwan
Lead author	<b>Yi-Cheng Tung</b> (National Tainan Girl's Senior High School, National Taiwan Normal University)
Co-author	Li-Tuan Chou (National Taiwan Normal University)

The 1990s was an era of great change in Taiwan's education history. The secondary school curriculum was amended a great deal due to the changes in educational trend and school environment, the development of social environment, and the expectations from the society and parents. The study aims to discuss the innovation of high school home economics curriculum in Taiwan between 1990 and 2010. The changes can be categorised into three parts:

- Changes in course objectives: Besides continuing to cultivate students' family life competence, new course objectives were added into the curriculum, including their ability to develop themselves, create and discover careers and face future challenges.
- Changes in course contents: Because of the great society changes, the appearance of Taiwanese families has much altered. Taiwan became the fastest worldwide to face the issue of low fertility, and even reached the lowest birth rate of 0.90 in 2011. The speed of ageing is rocket high, and family structure became more diverse. The changes in the curriculum aimed to integrate the building and maintaining of family relations. Taiwan's climate is greatly influenced by global warming. Therefore, issues like sustainable living and ocean education are also listed in the curriculum.
- Changes in curriculum policies: After ten years of education reform since 1996, 'Curriculum Standard' was officially renamed as 'Curriculum Guidelines', declaring teachers' power over course design.

In 1984 home economics and scientific technologies were two separate subjects, with female students studying the former and the male the latter. In 1995 the subjects were combined as one. Again in 2006, the courses were separated but into the same category. At this time, the required course credits decreased while the selective increased, resulting in the changes of course contents and reduction of teachers. In addition, the 2006 home economics curriculum used life course as the warp, and the aspect of living as the weft, weaving an integrated home economics curriculum that puts emphasis on both the course of life development and the management of family life. In 2010 the curriculum centred around ten themes: home economics and life; family relations; family conflicts and resilience; gender; spouse choice and marriage; resources management; home environment; clothing projects; clothing management; meal planning and preparing; as well as three elective courses: fashion life, diet culture and cooking, and image management and fashion.

## A study on food use for the lyophilisation *Ulva pertusa*

poster board ID 265-1-12

Country	Japan
Lead author	<b>Atsuko Yamamoto</b> (Aichi Gakusen College)
Co-author	Michie Moriyama (Aichi Gakusen University)

High visibility *Ulva pertusa* can be seen along coasts and its widespread generation has become a problem in recent years. Its use as an ingredient for food has gained attention as solution. This study aims for an effective expansion of the *Ulva pertusa* use with the purpose of developing lyophilized powder *Ulva* noodles. We thought to add *Ulva* powder in the noodles in for daily consumption. The componential analysis measured the amount of vitamin C in the high performance liquid chromatography post column labelling. Chlorophyll method was used for Arnon measurement, and active polyphenols method was adopted for Folin Denis measurement respectively. Active hydroxyl radicals 1, 1-Diphenyl-picrylhydrazyl (DPPH) radical scavenging activity were measured by conversion to the equivalent of ascorbic acid. Results showed that the *Ulva* noodles became weak viscoelastically due to gradual addition of frozen-dried *Ulva* powder. After scanning with an electron microscope, the network structure of wheat gluten was seen to be weakened by addition of *Ulva*. The colour of noodles became darker green with increasing addition of *Ulva* powder which was not a negative evaluation. Characterisation of noodle chewiness with increasing addition of *Ulva* powder was not observed. On the other hand, stress fracture of the measurement properties decreased with increasing addition of *Ulva* powder. The amount of polyphenols from *Ulva* noodles increased in comparison over the control. Results of sensory evaluation and physical measurements showed the *Ulva* noodles indicating 3 per cent *Ulva* powder is the best noodles. The addition of higher concentrations of *Ulva* is a challenge and good avenue for further study. Likewise, considering that noodles are a staple food, intake of polyphenol and vitamin C on daily basis would be significant for dietary and nutrient requirements.

## The relationship between present-day children's eating habits and food descriptions in picture books

poster board ID 293-1-13

Country	Japan
Lead author	<b>Miyuki Okada</b> (Hokkaido University of Education)

Good food is important for children to live a healthy and active life. For the past fifty years, the Japanese have struggled with various food problems such as an unbalanced diet, obesity, lifestyle-related diseases, and the crises facing traditional dishes. During the past fifty years, Japanese meals have become richer and richer. Such problems have occurred in children as well as among adults. Family life has an important effect on shaping of children's dietary habits. But there is yet another dimension to this problem. I think that picture books including many descriptions about foods have an effect on improving and shaping children's dietary habits. In this study, I surveyed the relation between actual eating habits among children and the descriptions about foods in picture books. I examined the drawings about foods and dishes presented in Japanese picture books, and considered the relation between children's eating habits and picture books for children. I selected 50 picture books available at Asahikawa City Libraries, one from every five years between 1960 and 2008. The material I consulted totals 500 Japanese picture books. My findings revealed that the total number of foods and dishes presented in picture books has greatly increased in the latter half of the 1980s and after. Many foods and dishes presented in picture books have changed from Japanese to Western style. Consequently, the child's intake of fat has increased every year. Rice as staple food has changed to bread since the latter half of the 1990s. In the same way, fish changed to meat since 2001. Furthermore, the number Western-style confectionery, a cause of child's lifestyle-related diseases has increased in picture books. I concluded that there is a strong relation between children's problematic eating habits and the descriptions of foods and dishes in picture books. I think picture books increase rather than diminish children's problems. However, special picture books for food education have been published and increased year by year. These picture books that include such healthy foods as rice, fish, and vegetables more than the ordinary picture books and sweets that harm children's health now appear rarely. Such picture books based on food education give children and their parents the opportunity to think about their diet and their health. Such picture books are very important for the sustainability of children's healthy dietary life.

## The relationship between home economics teachers' lifestyle consciousness and teaching

poster board ID 296-1-14

Country	Japan
Lead author	<b>Takako Koshimizu</b> (Shizuoka University)

### Aim

Home economics is the subject which teaches students about lifestyles. In Japan, there is a home economics teacher in each senior high school. This teacher is very busy with lessons, club activities, staff meetings and so on. It is difficult for someone in this position to gain on-the-job training, so home economics teachers have few opportunities to study other teachers' lessons and reflect on their classes. They have to study by themselves. As a result, there are great differences between individual teachers in their approach to lifestyle and the content of their lessons. We think teachers' lifestyle consciousness has an effect on their lessons. Therefore, we aim to clarify the relationship between teachers' lifestyle consciousness and their teaching.

### Method

We interviewed 18 home economics teachers: 14 teachers in 2009 and 4 teachers in 2010. The survey items were focused on background, lifestyle consciousness, perspective on home economics, relationship between study goals and teaching methods, and so on.

### Results and discussion

Lesson goals and teaching methods varied a great deal depending on the teacher's lifestyle consciousness. For example, one teacher emphasised communication in her life, so she taught students the skills of communicating with others. Another teacher emphasised experiential activities, so she provided students with opportunities to experience things related to lifestyle. Whether or not a teacher teaches gender-equality and human sexuality depends on the teacher's subject perspective. Moreover, these subjects are taught through diverse topics; for example child care, care for oneself, and design of living. There are three ways in which teachers' experiences related to their lessons. Type A teachers speak subjectively; type B teachers speak to impart information; and type C teachers choose as far as possible to teach without using their individual experiences. A teachers' lifestyle consciousness has an impact on their lessons. Therefore, it is necessary for teachers to consciously distinguish between the contents of students' learning and their own beliefs. It is desirable for teachers to reflect on their teaching methods so as to teach the subject content neutrally and to give students the chance to think for themselves.



## Effect of heating treatment on wheat starch granule during baking

poster board ID 306-1-15

Country	Japan
Lead author	<b>Tomomi Ito</b> (Hokkaido University of Education)
Co-author	Hiromi Kameya (National Food Research Institute Japan)

Mitsuko Ukai (Hokkaido University of Education) Some baked foods such as cookies are prepared under limited low-moisture conditions. In such conditions, wheat starch granules in baked foods are not gelatinised and keep their original shapes, but they are edible. We investigated molecular changes of the starch under the limited low-moisture condition during heating treatment such as baking. The heating condition was 200°C, 0.5–2hrs under open air. Heated starches were measured by Electron Spin Resonance (ESR) Spectroscopy, Scanning Electron Microscope (SEM), x-ray diffraction, viscosity property, enzymatic susceptibility. The ESR spectrum of the heated starch was composed of a singlet at  $g = 2.005$  and we considered the generating of some radicals by heating. The shapes of starch granules did not change on the SEM image in all samples. However, the x-ray diffraction and the amylase susceptibility showed the differences between the raw starch and the 1–2h heated starch. Viscosity of the starch samples obtained from the rapid visco-analyser (RVA) patterns and the limiting viscosity was lower than that of the raw starch in all treatment. These results suggest that starch molecules are remarkably changed under the heating condition in spite of the starch granule shape being kept the same.

## How female university students select their clothes: An evaluation of how comfortable they feel wearing these clothes for daily activities

poster board ID 317-1-16

Country	Japan
Lead author	<b>Kaori Murakami</b> (Hiroshima University)
Co-authors	Hiroko Yokura (Shiga University) Tomoe Masuda (Mie University)

We are satisfied with our clothes when we wear clothes that are suitable for us. However, these days, we wear ready-made clothes all through our daily activities, and it seems that few consumers recognise the importance of purchasing comfortable and suitable clothes. Also, with internet shopping, which has become popular throughout the world, including in Japan, people can't try on the actual clothes before purchasing them. It is likely that the shift toward this type of shopping system has affected how much we emphasise comfort when purchasing clothes. In this study, we surveyed how Japanese female college students purchase their clothes. Because they are very interested in fashion and greatly influenced by the consumer society around them, our study aims at learning their opinions about the relationship between comfortable clothes and the clothes they wear for their daily activities. We surveyed 471 female college students through a questionnaire investigating their opinions and how they selected their clothes. We then analysed their answers. The questionnaire asked about their sources for fashion information, how they purchased their clothes, their daily activities, and their opinions about buying clothes. The survey was conducted from April to June 2011. In terms of how they purchased their clothes, approximately 50 per cent had used internet shopping. About 50 per cent of the students rated the convenience, variety, and design as 'good,' but only 25 per cent gave a rating of 'good' for size, and just 16 per cent for the quality of the material. We also performed a factor analysis to extract information about the students' emphasis on the design of the clothes at the time they purchased them. The four factors we used were for the suitability of the clothes in terms of their comfort and material, their quality, such as the care required, where they wore them, and the students' ages. The contribution ratio was highest for the quality factor, at 28.6 per cent, but this was closely followed by the figure for the suitability of the clothes. In other words, two factors (quality and compatibility) were in great demand for comfortable clothes. It became clear that these ratings didn't rise with increased Internet shopping, for evaluations such as design and variety. Finally, we looked at how comfortable students felt, in terms of movement, when wearing a jacket, pants, a skirt, and a shirt, and clarified how each movement in their daily activities related to their evaluations of comfort.

### How are table manners passed down from parents to children within Japanese families during the child-rearing stage?

poster board ID 323-1-17

Country	Japan
Lead author	<b>Katsura Omori</b> (Yamagata University)
Co-authors	Kinuyo Kurokawa (Naruto University of Education) Asahi Sato (Yamagata University)

#### Aim

Family meal times are important in developing children's wellbeing. Children can learn many things such as nutrition, table manners and human interaction at the dinner table. However, it has been reported that Japanese families eat together less frequently and children are showing poorer table manners than before. The purpose of this study is to investigate how table manners have been passed down within Japanese families. The information we will collect will be useful in developing an effective way for families to teach table manners.

#### Method

We distributed a questionnaire July–August 2011 at four after-school day-care centres and got answers from 102 parents whose children went to local elementary schools. It included questions about how table manners were taught in their childhood and how they taught table manners to their own children. We also asked how often the families ate dinner together, whether they watched television during meal times and whether they thought table manners were important and why.

#### Results

About 20 per cent of respondents answered that they were taught to express gratitude for food before and after a meal, which they also taught to their own children. Furthermore, many parents taught table manners such as not putting elbows on the table and using chopsticks properly. The percentage of respondents whose families ate dinner together more than six days a week was about 70 per cent in their childhood, and about 50 per cent during their parenthood. There were parents who tried not to watch television so that children could concentrate on eating. However, about 50 per cent of the respondents answered that their families watched television during meal times. The respondents thought that they passed down about an average of 75 per cent of table manners that were taught in their childhood to their own children. About 70 per cent of respondents felt that table manners were important.

#### Conclusion

The results indicated that Japanese families ate together less frequently than before and that parents did not pass down all of the table manners which they were taught. However, they thought table manners were still important. It was suggested that parents should recognise the significance of table manners as crucial in developing children's social skills. It is important for Japanese children to practice table manners, not only during family meal times, but also in other situations, such as school lunches, eating with relatives during holidays and eating out in restaurants.

### Living activities and living environment of elderly residents in depopulated urban areas

poster board ID 331-1-18

Country	Japan
Lead author	<b>Hiromi Takehara</b> (Kyoto Notre Dame University)
Co-author	Youko Shimizu (Bukkyo University)

The ability of elderly residents to live healthy, independent lives in their local area over an extended period of time is a factor in fostering a vigorous and vital local community. Achieving this goal requires painstaking efforts applied to diverse aspects of daily life that meet the specific needs of a given locality. This study pays particular attention to local identity. Its subject is a locale with the following unique characteristics: it is a depopulated urban area with declining community functions; over 30% of its population are elderly; and it is a major kiln center for Kiyomizu-yaki pottery. We evaluated the current status of the daily living activities and living environments of the district's elderly residents. We then attempted to identify distinctive new needs in the district that pertain to cultivation of a living environment that will not impede elderly residents' independence. For this report we elucidated the actual conditions of daily life and the living environment. Based on an analysis of attitudes toward the locality and evaluations of current conditions, we classified the results into tangible factors such as geographical characteristics; intangibles like communication among residents; and the outlook for the traditional local industry (Kiyomizu-yaki). We further determined that these factors are not isolated from one another, but are intimately interlinked.

## Hypoglycaemic and hypocholesterolemic effect of sorghum extracts in high-fat diet induced type 1 diabetic mice and streptozotocin induced type 2 diabetic rats

poster board ID 347-1-19

Country	Korea
Lead author	<b>Yongsoon Park</b> (Hanyang University)
Co-authors	Myoung Sook Lee (Hanyang University) Jung-Min Kim (Hanyang University) Myong-Cheol Seo (National Institute of Crop Science, RDA)

There has been a demand for searching new compounds for the treatment of diabetes and plants have been suggested as a rich and yet unexplored potentially useful source. Sorghum (*Sorghum bicolor*) is the fifth most important cereal crop worldwide, both in terms of planted area and metric tons harvested. Sorghum flour is rich in phytochemical components, including tannins, phenolic acids, anthocyanins, phytosterols and policosanols, and with a potential to impact human health in a beneficial manner. Our purpose of this study was to investigate the effect of sorghum extract on glucose and cholesterol metabolism in high-fat diet induced type 1 diabetic mice and streptozotocin induced type 2 diabetic rats. C57BL/6 mice were fed AIN-93M diet with 10% fat from total energy intake or a high-fat AIN diet with 60% fat from total energy intake to induce type 2 diabetes. Wistar rats were injected with streptozotocin (60mg/kg body weight) to induce type 1 diabetes, and fed AIN-93 M diet. All mice and rats were orally administered one of following for 6 weeks: distilled water, low and high concentrations of sorghum extract. Oral glucose tolerance test or intraperitoneal glucose tolerance test were performed, and levels of insulin and lipid profile were measured at the end of treatment. Sorghum extract significantly reduced the levels of total- and LDL-cholesterol, insulin and glucose, and area under the curve of glucose during glucose tolerance test in both high-fat diet induced type 1 diabetic mice and streptozotocin induced type 2 diabetic rats. There were no significant differences in body weight, levels of serum triglyceride, HDL-cholesterol, glutamic oxaloacetic transaminase, and glutamic pyruvic transaminase. The expression of PPAR- $\gamma$  and adiponectin were significantly higher in sorghum extract consumed groups, while the expression of TNF- $\alpha$  was significantly lower. These results suggested that sorghum extract significantly increase insulin sensitivity, and improve hyperglycemia possibly through regulating PPAR- $\gamma$  mediated glucose metabolism in this diabetic animal model. (This work was supported by a grant from the KRDA, Agricultural R&D).

## Thermal comfort from air conditioners in the Japanese summer

poster board ID 362-1-20

Country	Japan
Lead author	<b>Ayako Yasuoka</b> (Nara Women's University)
Co-authors	Norio Isoda (Nara Women's University) Yuri Tanaka (Nara Women's University) Kazuyo Tsuzuki (National Institute of Advanced Industrial Science) Hiroko Kubo (Nara Women's University)

Numerous studies have been conducted on thermal comfort. An experiment in which the subjects chose preferred temperatures by operating a switch that regulated temperature in a climate chamber showed that there are sex differences in terms of body temperature regulation (Grivel 1991). Individual differences exist in comfort zones, and it is important to examine the human response in using air conditioners in summer. The present study aims to clarify physiological and psychological responses in people using air-conditioners in summer in non-laboratory conditions. Two hundred Japanese (100 males, 100 females; aged 18–29 years) participated in the present study. The subjects were initially seated in classrooms with no air-conditioning and were subsequently moved to air-conditioned classrooms where the temperature was set at 25°C for 60 minutes. We measured the air temperature, relative humidity, air velocity, globe temperature, oral and skin temperature, and distributed questionnaires assessing thermal sensation and comfort. Subjects were asked to declare their clothing items, and the insulation of each item was factored into the analysis. The clothing insulation (clo) was estimated from ISO (2007). The experiment was conducted in August 2009. The average clo value of males was 0.43 and that of females was 0.47. These values fall within the typical range of summer clothing. The average clo value females was significantly higher than that of males ( $P < 0.01$ ). The oral and skin temperatures of the females were significantly lower than those of the males were. These tended to decrease in both males and females when they were seated in the air-conditioned classrooms with a temperature of 25°C. In particular, the oral temperature decrease in females was significantly greater than that of males ( $P < 0.05$ ). Males reported to be comfortable from SET\*21°C to 26°C, and females did from SET\*23°C to 28°C according to the regression line of the relationship between SET\* and thermal comfort. Though males and females tended to feel discomfort without air-conditioning, females felt significantly hotter and more comfortable than males did in such an environment ( $P < 0.01$ ). Conversely, females felt significantly cooler and experienced more discomfort than males did in the air-conditioned environment at 25°C ( $P < 0.01$ ). Given these results, sex differences were found in physiological and psychological responses in the air-conditioned environment; thus, it is important to consider sex differences when adjusting the air temperature of the air conditioner.

### Family Ecology and Consumer Science professionals' perceptions of their professional preparation environments at South African universities

poster board ID 366-1-21

Country	South Africa
Lead author	<b>Judith Cornelissen</b> (University of the Western Cape)

#### Aim

In South Africa, family ecology and consumer science professional preparation programs vary in dimensions such as educational goals, expected outcomes, teaching methods, student time commitment, relation with practitioners, and even educational level; therefore it was not easy to develop a working understanding of each of them. The purpose of this study was to determine family ecology and consumer science professionals' perceptions of their professional preparation environment.

#### Method

A quantitative survey method was applied using the emphases, process and influences on the Professional Preparation Programme (PPP) questionnaire that was developed using the Conceptual Framework developed by Stark, Lowther, Hagerty and Orczyk (1986) to study pre-service professional program. The SPSS statistical package used the following statistical methods to analyse the data. A basic description (frequencies and percentages) of the external intra-organisational and internal influences on professional preparation environment was applied. A basic description (means and standard deviations) of the ideal and typical educational outcomes emphasised by staff at each university in the professional preparation of family ecology and consumer science students was also given. Finally, a basic description (frequencies and percentages) of the influences upon and curricular tensions within professional preparation programs was sought using SPSS.

#### Results

This study found that there were external influences on the family ecology and consumer science professional preparation environment. The professional staff members perceived that these external influences had a negative influence on the professional preparation programs. These negative influences are: that society does not provide ample rewards for members of the profession and that there are not sufficient job opportunities in the market place. They are of the opinion that there is a strong negative perception around the image of the profession. Staff members are undecided about the effect that National and Provincial Education Departments have on programs.

#### Conclusion

It can be concluded that staff members of the family ecology and consumer science professional preparation programs had diverse perceptions of the professional community external influences. They concur that the profession has not yet reached consensus on the overarching theoretical framework for the profession. This indecision is impacting negatively on the profession. Within the surge of specialisation, the profession is struggling to reach an understanding of what the crosscutting theoretical concepts are that binds the specialisation together as one holistic profession. One positive conclusion that can be drawn from the professional community's external influence is the positive role that publications play in the family ecology and consumer science professional preparation programs.

### Awareness of and use of Healthy Family Support Centres and the Multicultural Family Support Centres in South Korea

poster board ID 407-1-22

Country	Korea
Lead author	<b>Miai Sung</b> (Korea National Open University)
Co-authors	Meejung Chin (Seoul National University) Youngjoo Nam (Seoul National University) Saeun Choi (Chung Ang University)

#### Aim

Healthy Family Support Centres (HFSC) and Multicultural Family Support Centres (MFSC) are two major institutions that provide community-based family services and programs in South Korea. There were 138 local HFSCs and 200 local MFSCs delivering services in 2010. Because it has not been long since HFSCs and MFSCs were established nationwide (the first HFSC was established in 2004 and the first MFSC in 2008), their existence and functions are known to a limited range of people. To increase service utilisation, the centres need to obtain information on current service users, explore potential service users, and build strategic service delivery plans.

#### Method

In order to identify those who know the centres and who use the services, we drew data from the 2009 National Survey of Korean Families. This is a nationally representative data set consisting of 2500 households and their 4754 household members whose age was older than 15 years old. We investigated the proportion of those who knew the existence of the centres and who ever used their services. Then we analysed through logistic regressions how demographic characteristics were associated with awareness and use of the centres.

#### Results

We found that 18.81% of respondents were aware of HFSC and 38.41% aware of the MFSC. Because multicultural families have been one of the salient social issues over the last few years in South Korea, the multicultural centre is more notable for people than HFSC. However, the proportion of service users is higher for HFSC (9.28%) than for MFSC (2.79%). It is not surprising in that MFSC targets only multicultural families whereas HFSC targets all families.

#### Conclusion

Awareness of the HFSC decreased with age and increased with household income. Those who had more than high-school education were more likely to know of HFSC. Also, those who lived in middle-sized cities or in rural towns were less likely to know of the HFSC than those who lived in large cities. Usage experiences were positively associated with age and education. Similar patterns were found in the case of MFSC. The level of awareness of the MFSC increased according to age and education. Yet, the likelihood of using the centre was higher for the older age group. Those who had high-school education and those who were employed were more likely to use MFSC. Residents in rural areas were less likely to use the MFSC than residents in larger cities.

## Research on the utilisation of rice flour for bread, breadcrumbs and other foods

poster board ID 409-1-23

Country	Japan
Lead author	<b>Tomoko Yamaguchi</b> (Niigata University)
Co-authors	Yuka Ichimura (Niigata University) Haruna Onuki (Niigata University) Sumiko Odani (Jumonji University)

Rice is one of the most important crops in Asian countries, especially in Japan. However, the consumption of rice in Japan has been gradually decreasing, because Japanese dietary habits have changed. Niigata is one of the most famous areas for rice-growing, and has produced a new type of rice flour suitable for bread making. The utilisation of rice flour contributes to the increase the national consumption of rice. Rice flour is also good for wheat allergy patients, because of absence of gluten in the rice flour. In this study, we investigated the utilisation of rice flour in foods such as bread, breadcrumbs, doughnuts, white sauce etc. Gluten-free rice bread was prepared with white/brown rice flour, olive oil, sugar, salt, dry yeast, and hydroxypropylmethylcellulose, and baked at 180°C for 45 minutes. The brown rice flour was added at 25%, 50% and 75% proportions into white rice flour. After baking the bread, specific volume, water content, colour ( $L^*$ ,  $a^*$ ,  $b^*$ ), physical properties, and sensory attributes were measured. The white rice flour bread were dried at 25°C for 72 hours, and then smashed into 2, 3 and 4 mm crumb size by a food processor. The crumbs were deep-fried at 180°C for 2 minutes; then oil absorption rate and colour ( $L^*$ ,  $a^*$ ,  $b^*$ ), and sensory attributes were measured. The water content of white rice flour bread was 48%, and it was over 5% higher than that of commercial bread made with wheat flour. Increasing the ratio of brown rice flour caused a decrease in specific volume and water content, and increased the hardness of the bread. In the case of white rice flour bread crumbs, the oil absorption rate was lower than the breadcrumbs of wheat flour. However, there was no significant difference in crumb size in the case of the rice flour breadcrumbs. The colour of the rice flour breadcrumbs showed lower  $L^*$ -value, higher  $a^*$ -value, and lower  $b^*$ -value than that of wheat flour after the deep-frying process. The deep-fried food using rice flour breadcrumbs was considered to be dark, hard, and tasty on a sensory evaluation. These findings show that the utilisation of rice flour for bread crumbs is better for health to decrease the intake of fats and oils from deep-fried food. We are still studying the availability of rice flour for some foods to increase the consumption of rice.

## Acceptability of potato-based vegetable chips for pre-schoolers in South Africa

poster board ID 413-1-24

Country	South Africa
Lead author	<b>Petro Swart</b> (University of the Free State)
Co-authors	Maryna De Wit (University of the Free State) Carina Bothma (University of the Free State) Arnold Hugo (University of the Free State)

### Aim

Preference plays a central role in food choices and is established early in life. For children, the liking of non-nutritious foods and cereals was found to be 64% and 56% respectively, in contrast to the 7% for vegetables. Increasing vegetable intake can optimise nutrition, enhance health, reduce obesity risks and provide enough fibre, vitamins, minerals and antioxidants. The aim of this study was to prepare vegetables in such a way that children would prefer it to junk food. Children love chips, and the concept was to prepare vegetables in the shape of a 'chip', using dried potato as a basis.

### Method

A basic choux-paste was prepared, replacing part of the flour with dried potatoes and the water with fresh vegetable juice. Three vegetables were used, namely beetroot, green beans and carrots, mainly for their colours. Vegetable fibre was mixed back into the choux-mixture. It was then shaped into 'chips' and baked in the oven to set. Chip-like pieces were then 'fried' in an air-fryer. A paired preference test for ages 2–4 and 4–7, and a ranking test for 4–7 year olds were done.

### Results

For the paired preference test, 63% female and 37% male respondents took part, with 40% three- and 60% four-year olds. When shown pictures of food, this group significantly preferred the chips to the green beans. This could be because they have not yet been introduced to green beans at home and did not know what they were. The second paired preference panel had 37% four-, 34% five- and 29% six-year olds. The gender split was 53% females and 47% males. This panel did not only significantly prefer chips to green beans, but also to the beetroot. When shown pictures of green beans and beetroot, the children indicated that they did not know what they were, because they had not yet eaten it at home. In the ranking test done by this group on the potato-vegie chip, the carrot chip scored 7.10, representing 'like a little' on the smiley face scale, while the green bean chip scored only 5.31, representing 'neither like nor dislike'. There was a significant preference for the carrot chip over the green bean chip ( $p < 0.01$ ).

### Conclusion

Children of four to six years preferred carrot chips to green bean chips and ranked them 'like a little' on the smiley face scale.

## Effects of the reduction of home economics credits and teachers' views on the curriculum: The case of Japanese senior high schools

poster board ID 437-1-25

Country	Japan
Lead author	<b>Mitsue Nonaka</b> (Ehime University)
Co-authors	Noriko Arai (University of Fukui) Hiroko Kamata (Hokkaido University of Education) Yuko Kamei (Kokugakuin Tochigi Junior College) Junko Kawabe (Hokkaido University of Education) Megumi Kawamura (Bunka Gakuen University) Mihoko Saito (Kagoshima University) Mitsue Shinyama (Bunkyo University) Mayuko Suzuki (Osaka Kyoiku University) Yukiko Nagasawa (Iwate University) Yukio Nakanishi (Saga University) Tomoko Watahiki (Kanazawa University)

### Aim

In Japan, home economics in senior high school had been a required subject with four credits since 1994; however, after 2003 the Ministry of Education decided to set the minimum at two credits required for all subjects. As a result, home economics in each school suffered through the reduction of credits, teacher cut backs and poor conditions for those who remained. The purpose of this research is to clarify the effects and problems of the reduction in home economics credits at the senior high school level and also to investigate teachers' views on the home economics curriculum as it now stands.

### Method

Questionnaires were sent to 1311 senior high schools in Japan, and 621 responses were analysed.

### Findings

About seventy per cent of home economics teachers had experienced the decrease in the number of required credits in home economics. Because of the reduction in the number of home economics credits, teachers were forced to cut down on the number of learning hours focused on clothing and housing, and felt compelled to decrease the amount of practical and investigative learning. Approximately seventy per cent of schools employed only one or no full-time teacher for home economics. In addition, about sixty per cent of those full-time home economics teachers were teaching additional subjects besides home economics. This means it is difficult for schools to place one full-time teacher dedicated only to the subject of home economics. The decrease in learning hours of home economics caused a decline in students' everyday living skills, and also caused the relative decline of the subject's value and prestige in terms of schools' political power structures. Home economics teachers think 'independent living' and 'Living together' are indispensable concepts of home economics; moreover, they try to nurture in students the knowledge and skills of living, problem solving literacy and human relations' literacy.

### Conclusion

This study shows that the reduction of home economics credits is a serious problem because it may well deny the possibility for the subject to nurture living competencies and citizenship among students simply through the shortage of learning hours. We should widely proclaim the uniqueness and indispensable value of the subject to other professions and make networks among home economics teachers all around Japan.

## A study on housing environments in the Yoshino-type village in Nara, Japan: Lifestyle and thermal environment in the Kakezukuri type house

poster board ID 452-1-26

Country	Japan
Lead author	<b>Michiyo Azuma</b> (Kio University)
Co-authors	Ikuko Banba (Kinki University) Hiroko Kubo (Nara Women's University) Norio Isoda (Nara Women's University)

Yoshinoyama in Nara was designated World Heritage by UNESCO in 2004. The scenery of cherry trees in spring is particularly superb. Yoshino-date which is one of the Kakezukuri houses has the cultural landscape element that came from the land used in the mountains in this area. The houses are built hung up in a slant, the front entrances are on the first floor and the underground floors are visible only at the back of the houses. With an increase in numbers of the elderly in the area, not only from a viewpoint of the scenic maintenance but also from a viewpoint of safety and comfort, it will be necessary to examine the housing environment. This paper is intended as an investigation of the lifestyle and the thermal environment in Yoshino-date. An investigation of how the rooms are used, what clothing are worn, how often air-conditioning or heating is used in each season and measurements of thermal environment were carried out in three detached houses. The investigation was conducted in May-July and January-February 2011. The thermal environmental conditions and the indoor temperatures and humidity on each floor of the houses were continuously recorded at intervals of 10 minutes by using compact recording devices. A commonality was found in the usage of each floor: the first floor was used as a store; the basement or second floor were used as a living room and a bedroom; and the undercellar was used as a warehouse. The average temperature was 2.7 degrees outside during the winter season, sometimes recorded below the freezing point. The heating method often combined a stove with an air-conditioner in each house. When not using heating, the indoor temperature decreased to the outside temperature because of low air tightness and low adiabaticity. Since the room temperature when heating was used exceeded 20 degrees, the effect on health due temperature difference was a concern. The average temperature was 25.8 degrees outside during the summer season, with the maximum temperature lowest in the basement. The tendency for temperature change was small and relative humidity was high. The indoor ventilation was good and the rate of using air-conditioner was low. Various considerations with the avoidance of a severe climate in summer have been adopted in the traditional houses in Japan. The subject houses were one of the typical examples.

### Comparative analysis of food intake according to the habitation status of senior citizens

poster board ID 472-1-27

Country	Korea
Lead author	<b>Min-kyung Kwon</b> (Hanyang University)
Co-authors	Yeon-Joo Lee (Hanyang University) Sang-Seon Lee (Hanyang University) Yoo-kyung Park (Hanyang University) Jeong-yung Park (Hanyang University)

#### Aim

As the ratio of senior citizens living alone increases in the currently ageing society, there is much concern about the health and nutritional intake of solitary senior citizens. Therefore, this study compared the nutritional intake of senior citizens according to their habitation status.

#### Methods

In July and August of 2011, two senior citizen welfare centres in Seoul were visited to survey 347 senior citizens. Excluding 37 subjects for which the data was incomplete, information was collected from 310 subjects. The data categories were: living alone (92 subjects); single living with children (56 subjects); living as a couple (112 subjects); and a couple living with children (50 subjects).

#### Results

The mean age of the group who lived alone was the highest (75.4yr) while the mean age of couples living with children was the lowest (71.5yr) ( $p < 0.05$ ). The Body Mass Index (BMI) was the highest in the couple group (25.2) and the lowest for couples living with children (24.0) ( $p < 0.05$ ). Income was the highest in couples living with children while the lowest for those living alone ( $p < 0.05$ ). In terms of caloric intake, couples were the highest (1607 kcal) while those living alone showed the lowest level (1390 kcal) ( $p < 0.05$ ). Nutrient intake was calculated per 1000 kcal. Carbohydrate intake was the highest for those who lived alone, while it was the lowest for single senior citizens living with their children ( $p < 0.05$ ). Animal fat, cholesterol, and animal protein were the highest in single senior citizens living with their children but the lowest for those living alone ( $p < 0.05$ ). The results show that senior citizens who live alone rely on carbohydrate foods for energy rather than animal products. The vitamin B1 intake was the highest in couples living with children but the lowest in senior citizens living alone ( $p < 0.05$ ). Zinc intake was the highest in single living with children but the lowest in senior living as a couple ( $p < 0.05$ ).

#### Conclusion

In conclusion, senior citizens living with children were receiving better nutrition than senior citizens living alone or as couples. Therefore, solitary or senior citizen couples who do not live with their children should be offered greater opportunities to receive balanced meals at community kitchens or welfare centres. It is essential to provide continuous nutrition education with these groups in mind to ensure their healthy diet.

### Pre-retirement planning for sustainable futures

poster board ID 481-1-28

Country	Korea
Lead author	<b>Kyung Jin Cho</b> (Chungnam National University)
Co-author	Jung In Shim (Chungnam National University)

#### Aim

This study is to analyse the factors influencing middle-aged households' financial preparation for retirement. For this purpose, this study has grasped the level of living that middle-aged households want to live in the old age, analysed the human capital investment and savings of the middle-aged households, and surveyed the living cost preparation for the future old age of the middle-aged households. Finally, found out the demographic characteristics, household-related factors, financial factors, the investment in human capital and savings that are affecting the preparation for the living cost for the old age of the middle-aged households.

#### Methods

For these specific research issues, data are from 3rd Korean Retirement and Income Study (KReIS) surveyed by the National Pension Research Institute in 2009. First, this study has selected the household heads in the middle age group (less than 65). Next, among them, household heads with one or more children have been selected. The final samples out of these procedures that were selected were 757 households, which were divided into two groups, 228 public education expenditure households and 529 non-public education expenditure households according to the existence of public education expenditure. For the statistics, SPSS program (Version 19.0) has been used to investigate the research issue. Statistical methods used in this study were frequency, percentile, Chi-square test, mean, standard deviation, t-test, Pearson's correlation coefficient and logistic regression analysis.

#### Findings and discussion

Both 85.1% of public education expenditure households and 86.2% of non-expenditure households answered that they don't want to live with children in their old age. And the reason for not living together is that they want to have independent lives in old age. The percentile of living together with children in old age was low, the reasons for which were less loneliness and financial difficulty, and it indicates that they are psychologically and economically dependent on the children. The highest percentile of those taking charge of preparation for the old age was household head for both public education expenditure household and non-expenditure household. Regarding savings purposes, the savings for the preparation of the old age in the public education expenditure household was 34.4%, while it was 49.6% in the non-expenditure household. Comparing the significant variables affecting the living cost preparation for the old age between the public education cost expenditure household and the public education cost non-expenditure household, total household income, existence of financial assets, and economic independence have influenced both groups.

## High school students' consciousness and conditions of 'literacy in human relations' and how it relates to home economics

poster board ID 489-1-29

Country	Japan
Lead author	<b>Yumi Yoshimura</b> (University of Fukui)
Co-author	Noriko Arai (University of Fukui)

### Aim

In Japan, many of us have problems in human relations, and they seem to become worse and more knotted. Most children think it is troublesome and difficult to relate to others. However, it is important to have good relations with others because it may bring out one's hidden potential and help the person in various ways. The Japan earthquake, which occurred in March 2011, reminds us again of the importance of cooperation and unity with others for it is a key concept for the revitalisation of Japan. The purpose of this research is to clarify the primary factors of concern with 'literacy in human relations' and also to investigate the contents and the methods of home economics that nurture students' literacy in human relations.

### Method

Questionnaires were sent to four senior high schools in Fukui, and 793 students' replies were analysed.

### Findings

Significant correlations were found between 'literacy in human relations' and students' mental independence, sense of self-esteem, experience of investigative work, civic spirit and incentives for learning home economics. Significant correlations were also found between the 'literacy of human relations with others' and home economics learning. Students who have experienced a lot of investigative activities and who have learned the topics of childhood, elderly and family issues were more positive about relating with others. Data showed that the students who have much investigative experience were much more positive about relating with their families and in social affairs, having a stronger sense of mental independence and higher self-esteem. Many senior high school students were found to have various inner conflicts and heartache about their human relations with others. They know the importance of good relations, but they can not actually trust others, nor look after themselves as they would like, and feel pain when in contact with others.

### Conclusion

This study shows that the home economics curriculum should provide perspectives to encourage independence, a sense of self-esteem, and the civic spirit to nurture the literacy of human relations among students. In addition, discussion with others and undertaking investigative activities on study topics such as child development, social welfare and family issues in home economics should also form an important part of the curriculum.

## Effects of the 'Sugoroku' game of food education in elementary home economics

poster board ID 492-1-30

Country	Japan
Lead author	<b>Miyoko Ishizawa</b> (Jouetsu University of Education)
Co-authors	Kazuki Naka (Hyogo University of Education) Sadako Tokumaru (Jouetsu University of Education)

Food education is very important for children. We developed a teaching resource called 'Sugoroku-game for food education' in order to teach not only nutritional knowledge but also the pleasure of it. Sugoroku is one of the Japanese traditional games. Children can learn food knowledge and how to combine the menu during the game. We had the home economics lessons using the game for the sixty-three children of sixth grade in the elementary school. I had the questionnaire about learning food knowledge and arousal of interest in food. In our results, we found children could learn and understand more about food groups, and were more interested in various things relating to food and its role in life.



**Characterisation of a new cultivar yellow soybean (Glycine max)**

poster board ID 493-1-31

Country	Japan
Lead author	<b>Satomi Nomura</b> (Kyoto Prefectural University)
Co-authors	Kimiko Ohtani (Kyoto Prefectural University) Noriyuki Furutani (Kyoto Prefectural Agriculture, Forestry and Fisheries Technology Centre) Motoko Matsui (Kyoto Prefectural University)

**Aim**

Soybean is one of the important crops like wheat and corn. The major part of soybean has a transparent seed coat (yellow soybean). There is also the black soybean, 'shintanbaguro', in Japan. It is the biggest soybean (68.4g/100g DW) in the world and its boiled soybean is excellent. Therefore, the black soybean is utilised in high-quality foods such as New Year dishes. 'Kyoshirotanba' is a new cultivar yellow soybean (Glycine max) obtained under the breeding process of 'shintanbaguro' and is also characterised by the big size. We compared 'otsuru' with 'kyoshirotanba' to clarify the cooking properties. 'Otsuru' is a common yellow soybean suitable for boiled soybean in Japan.

**Method**

Shintanbaguro, kyoshirotanba and otsuru were harvested in 2009 in the Kyoto prefectural agriculture, forestry and fisheries technology centre. Water-soluble oligosaccharides and free amino acids were determined by HPLC equipped with the column of NH2P-50 for oligosaccharides and Shim-pack Amino-Na for free amino acids. The rheological properties of soybeans boiled for 3min at 121°C were measured by using a Rheoner II (RE2-3305B, Yamaden Co, Japan) with the wedge-type plunger (speed: 0.5 mm/sec; clearance: 99%).

**Results and discussion**

The data of 100 seed weight were 50.3 g in kyoshirotanba and 40.2 g in otsuru. Although the total sugar content in the water-soluble fraction of kyoshirotanba was similar to otsuru, the percentage of sucrose was more than 10% like shintanbaguro. The water-soluble oligosaccharides of it mainly consisted of sucrose with a small amount of glucose and fructose (74:1:8). And the total free amino acid in water-soluble fraction was higher in kyoshirotanba than otsuru, which mostly consisted of glycine, glutamic acid and aspartic acid, which might give umami and sweetness. Its texture properties were similar to shintanbaguro, for which breaking strength was smaller than that of otsuru (Kyoshirotanba: 1.07 N, shintanbaguro: 1.05 N, otsuru: 1.44N). These results indicated that the good taste of kyoshirotanba was characterised by the softness and the sweetness. It was revealed that it inherited the superior seasoning of the black soybean. Therefore, it was suggested that it has excellent value, greater than common yellow soybean.

**Vitamin D and parathyroid hormone are associated with prevalence of hypertension among elderly Koreans: The Fourth Korea National Health and Nutrition Examination Surveys (KNHANES IV) 2009**

poster board ID 535-1-32

Country	Korea
Lead author	<b>Sang Sun Lee</b> (Hanyang University)
Co-author	Yeon Joo Lee (Hanyang University)

**Aim**

Low levels of serum 25(OH)D are associated with increased risk of diabetes mellitus and cardiovascular diseases inducing hyper-secretion of parathyroid hormone. Vitamin D deficiency is common in Korea due to changed lifestyles and dietary behaviours. The purpose of this study is to evaluate the association of serum 25(OH)D and parathyroid hormone(PTH) with the prevalence of hypertension and plasma lipid profiles in elderly Korean.

**Methods**

The fourth Korea National Health and Nutrition Examination Surveys (KNHANES IV) in the Korean population was conducted in 2009. The study subjects were 3306 elderly persons who were aged 50 years and older – 1448 males and 1858 females – and based on a large population-based survey in South Korea. Serum 25(OH)D levels and the prevalence of vitamin D insufficiency was defined as serum 25(OH)D level of less than 20ng/ml. And the association of PTH and hypertension was evaluated by quartiles of PTH levels.

**Results**

The percentage of vitamin D insufficiency (<20ng/ml) in the study subjects was 48.3% of males and 63.7% of females, whereas only 12.0% of males and 6.1% of females had a sufficient level of serum 25(OH)D (≥30ng/ml). Serum 25(OH)D level showed negative relation with PTH, BMI, waist circumference, triglyceride and fasting blood glucose, and showed positive relation with HDL-cholesterol (p<0.05). Also, the level of PTH showed significantly positive association with BMI and negative association with serum 25(OH)D and Ca intake. Compared to individuals with sufficient serum 25(OH)D concentration ≥30ng/ml, the odds ratio (OR, 95% CI) for prevalence of hypertension were 1.161(0.811-1.663), and 0.929(0.639-1.353) for serum 25(OH)D concentrations <20ng/ml, and 20 to <30ng/ml, respectively, after adjusted by age, sex and region (p-trend=0.187). After adjustment for age, sex and region, the odds ratio (OR, 95% CI) for prevalence of hypertension with the highest quartile of PTH level was significantly increased compared with the lowest quartile, 1.39(1.13-1.70, p-trend=0.300).

**Conclusion**

Vitamin D insufficiency is very common in Korea, and the low level of serum 25(OH)D is associated significantly with the hyper-secretion of PTH. The concentration of PTH was the strong risk factor of the prevalence of hypertension, rather than the levels of serum 25(OH)D.

**Numerical simulations for a heating process in boiling potatoes based on a multi-scale porous model**

poster board ID 539-1-33

Country	Japan
Lead author	<b>Tomoko Hara</b> (Kobe Yamate College)
Co-author	Takao Yoshinaga (Osaka University)

It is important to know suitable conditions of heating for cooking and processing of foods. For this end, we need to understand effects of heat and mass transfer between foodstuffs and surrounding fluids. In particular, when the food is boiled, the effects need to be understood of thermal and fluid convection in a container and evaporation and condensation on the food and fluid surfaces. In the present study we numerically predict the temperature, concentration and hardness in potatoes at any time and location when the potatoes are boiled in a container filled with salt water by heating from below. In our model, not only the individual potatoes are considered to be porous media with a finer characteristic scale, but also the configuration of the potatoes in the container is to be a porous medium with a larger characteristic scale. Based on this multi-scale porous model, the analysis is performed in the equations of fluid motions and heat and mass diffusions and the results are partially compared with the boiling experiments for two different sizes of potatoes without changing their total volumes. The results are as follows: The calculated temporal variation of the averaged fluid temperature had a high correlation with the experimental results, where the container is heated for about 5000sec and later the heater is terminated. Using the numerical fluid temperature as the surface temperature of the potatoes, it is shown that the inside temperature variation of the potatoes is more delayed than that of the surface temperature as the distance inside from the surface is larger; these numerical results are confirmed by the experiment for two different sizes of the potatoes. When the salt concentration inside the potatoes is calculated from the fluid concentration at the surface, it is found that the concentration increases more rapidly with a smaller distance from the surface rather than with an increase of the time. On the other hand, the variation of the hardness is also calculated from distribution of the temperature inside the potatoes. It is then found that the hardness decreases more rapidly as the temperature increases; the variation becomes drastic when the local temperature exceeds a threshold of about 75 degrees Celsius.

**A study on the mediating effect of marital satisfaction in the influence of the gap between marital expectation and reality on Korean couple's life quality**

poster board ID 544-1-34

Country	Korea
Lead author	<b>Eun-Hee Lee</b> (Yeungnam University)
Co-author	Ji-Min Lee (Yeungnam University)

**Aim**

This study aimed to examine the mediating effect of marital satisfaction in the influence of the gap between marital expectation and reality in the quality of life of Korean couples.

**Method**

The subjects of research were 138 couples living in Daegu, South Korea, whose marital period was less than five years. A questionnaire included measures of marital expectation and reality, marital satisfaction, and life quality. As suggested by Baron and Kenny (1986), regression analysis was conducted to examine the mediating effect of marital satisfaction in the influence of gap between marital expectation and reality.

**Results**

For husbands, the gap between marital expectation and reality significantly influenced marital satisfaction( $\beta=-.28, p<.01$ ), while the gap between marital expectation and reality significantly affected life quality( $\beta=-.21, p<.05$ ). Also when marital satisfaction and the gap between marital expectation and reality were input simultaneously, marital satisfaction affected life quality significantly( $\beta=.60, p<.001$ ), and the gap between marital expectation and reality had no influence over life quality( $\beta=-.04, ns$ ). These results indicated that marital satisfaction completely mediated the effect of the gap between husbands' marital expectation and reality on his life quality. For wives, the gap between marital expectation and reality significantly affected marital satisfaction ( $\beta=-.89, p<.001$ ), while the gap between marital expectation and reality significantly affected life quality( $\beta=-.45, p<.001$ ). Also when marital satisfaction and the gap between marital expectation and reality were input simultaneously, marital satisfaction affected life quality significantly( $\beta=.65, p<.001$ ), and the gap between marital expectation and reality had reduced influence over life quality( $\beta=-.14, p<.05$ ). Therefore, it can be said that marital satisfaction partially mediated the effect of the gap between wives' marital expectation and reality on their quality of life.

**Conclusion**

The findings of this study suggest that it is necessary to narrow down the gap between marital expectation and reality to improve couples' marital satisfaction. Also, these results imply that preliminary marriage education is required for males and females to consider the meaning of marriage and to have a realistic perspective on marriage.

### Developing and implementing practical problem-focused instruction for nurturing critical literacy in high school home economics in Korea: Focus on food and nutrition education

poster board ID 560-1-35

Country	Korea
Lead author	<b>Ki Young Lee</b> (College of Human Ecology)
Co-authors	Soo Hee Lee (Seoul National University) Seung Hee Yuk (Seoul National University Senior High School)

The Korean Ministry of Education newly revised the home economics curriculum in February 2007. The practical problem-focused curriculum perspective was reflected newly in the 2007 Home Economics National Curriculum Revision, and so the published textbooks included this paradigm. The purpose of this study is to develop the practical problem-focused instruction for nurturing critical literacy and to examine the effects of the five-step learning method of practical problem-solving on critical literacy for high school students. To develop a practical problem-focused instruction for high school students, three current high school home economics textbooks were reviewed. Then a new manual was revised based on the model of five-step problem-solving for nurturing critical literacy by Laster. The newly developed high school teachers' manual was comprised of 24 lesson plans in the area of food and nutrition education including a perennial problem on a desirable dietary life and five practical problems. For each practical problem, teaching materials were established using recent news articles and magazines that reflect related social issues. In addition, the evaluation model for critiquing curricula by Ray was used to test the validity of the newly developed manual. Data were from 79 high school female students in the 11th grade who participated in the class using the newly developed manual. To verify the effects of the newly developed manual on critical literacy of students, a pre-test as well as a post-test was implemented. In the questionnaire, 77 questions were included. The statistical analysis was performed by mean, standard deviation, and paired t-tests using SPSS 18.0. The major findings were as follows: Firstly, the analysis of current three textbooks on 'dietary life' were memorisation-based lay-out, and failed to motivate students in developing critical thinking and problem-solving skills. Secondly, the statistical comparison of the post-test with the pre-test showed that the level of critical literacy of students was significantly improved after participating in the class by 24 lesson plans of the newly developed manual. Moreover, the new learning method contributed to the improvement in the level of collaboration and intimacy among students, and interests in the subject, as well as critical literacy. Based on the empirical results, some practical suggestions for high school teachers in home economics to improve students' critical literacy are provided.

### The effect on adolescents of school knowledge about eating habits

poster board ID 563-1-36

Country	Japan
Lead author	<b>Tomoko Fujita</b> (Nagoya Women's University)
Co-author	Yuka Sakamoto (Ochanomizu University)

The rates of adolescents skipping breakfast and eating disorders have increased, even though many policies on food education have been developed in Japan. I investigated the effect of school knowledge about eating habits on adolescents' focus on their self-esteem and examine how effectively home economics education can be taught to adolescents. School knowledge is defined as knowledge taught at school and general attitude toward education. This study focuses on home economics education that is at the centre of food education in Japan. Questionnaires were administered to 1629 high school students (1000 females and 629 males) in Tokyo, Niigata, and Fukuoka. It was found that eating habits were significantly different by gender. Female students gave attention to nutritional balance. However, they did not have enough staple food and tended to believe information about losing weight and health foods. Women had dietary restrictions concerning becoming thinner. On the other hand, male students had enough staple food and dairy products. But they had much soft drink, fatty and salty food. And males had the tendency to have meals easily. The exploratory factor analysis indicated that the structures of male and female eating habits were the same. Factor analysis extracted four factors, which were labelled as 'valuing body control', 'valuing every day meals', 'valuing favourite food', and 'valuing nutritional balance'. I examined the effect of school knowledge about eating habits on adolescents' self-esteem. The results of one-way analysis of variance indicated that adolescents' attitude toward home economics education was significantly related to higher self-esteem. Two-way analysis of variance showed interaction effect on 'valuing everyday meals'. Adolescents who had 'valuing everyday meals' and less knowledge on nutrition and who had much knowledge on nutrition without 'valuing everyday meals' both related to lower self-esteem. Interaction effect was not found on the other eating habits, but when adolescents had knowledge on nutrition and favourable eating habits, their self-esteem invariably was highest. These results indicated that it is important for adolescents that school knowledge about eating habits and favourable eating behaviour should be carried out simultaneously.

### Information access and improvement in status of Japanese female farmers related to sustainable life management in agricultural, forestry, and fishery villages

poster board ID 568-1-37

Country	Japan
Lead author	<b>Misako Kasuya</b> (Showa Women's University)

Japan has many problems, such as the decreasing population in rural areas, foot and mouth disease and highly pathogenic avian influenza, the East Japan great earthquake, and nuclear power plant accidents on 11 March 2011, all of which influence agriculture, forestry, and fishery, including damage caused by rumours, and the TPP issue. On a global scale, there is starvation due to food shortages and its relation with environmental problems. The priority theme of the 56th term of the United States Commission on the Status of Women is the empowerment of rural women and their role in eradicating poverty and hunger as well as development and current challenges. Female farmers also face severe circumstances related to agricultural policies. Information can be transmitted and received simultaneously all over the world through a highly networked computer society. Under these circumstances, what information is needed by female farmers? Knowing the status of female farmers, who are supporting Japanese and global agriculture, is important for improving the gender equality of female farmers and is related to establishing their autonomy. For contemporary female farmers, information literacy is considered necessary for them to utilise personal networks and information devices, and to extract and utilise necessary information from the huge volume of information and then to transmit it. This report seeks to confirm the importance of gender statistics as social information in agricultural, forestry, and fishery villages; to arrange information about the third-term basic plan for gender equality; to analyse and consider social participation and information for female farmers based on the questionnaire survey implemented in Yamaguchi Prefecture in 2005 (responses from 187 farm households.) Results showed that although in Japan after World War II, life improvement groups achieved certain results as one of life improvement diffusion projects of the Ministry of Agriculture, Forestry and Fisheries, networking of females in contemporary agricultural, forestry, and fishery villages is advancing separately from such activities. The power and motivation of female farmers to actively exploit their own ways and to collect and transmit information form important bases for such efforts. The gender gap in information access deprives females of opportunities to access globally accumulated knowledge and culture. Furthermore, women may fall behind in global information and will find it difficult to take leadership in an information society. This study has demonstrated that information access and social participation are essential for improving the status of female farmers.

### Relationship between family income and education investment in children in Japan

poster board ID 573-1-38

Country	Japan
Lead author	<b>Satomi Terasaki</b> (Fukuoka University)
Co-author	Noriko Kanie (Utsunomiya Kyowa University)

This research focuses families' household economies and actions regarding education expenses. Based on the idea that an education is considered to be an investment in children as human resources and children's future income levels will go up through the accumulation of human resources, the investment in the education of a child by parent can be called income transfers between generations. From an international perspective, Japan is a country in which the private burden for education expenses is extremely heavy. Especially in the economic recession after 2008, the reduction of family income had a big influence on the private burden of education expenses. When investing in the education of a child, management of education expenses is an important issue. We conducted research on the parents of sixth graders in public schools of a small city in the Tohoku district of Japan, and analysed the following questions: 1. What educational achievement do parents expect of the child?; 2. How much are the preparation expenses and education expense for that?; 3. Who should pay the expense for the privilege of a good education: child or parents?; 4. What kind of expectations for a child makes parents invest in education?; 5. What kind of difference does family income level and the gender of children make to education investment actions? Our analysis revealed that: 1. The expectation for a child's educational achievement and the preparation for school expenses were affected by family income. The higher family income goes up, the higher the expectation and the better the preparation; 2. These trends were more remarkable when a child was a girl; 3. There were many parents who think that parents should pay an education expense; 4. The parent's expectation of the future livelihood support from their child was low; 5. When a child was a boy, parents expected future economical support from their child, and when a child was a girl, they expected noneconomic support such as living together or nursing-care. The education investment without expectation on children to support parents in the future has suggested the situation of intergenerational income transfer. A parents' income has transferred to their child through a child's educational achievement. An economic security policy on education expenses based on these findings is required.

## Evaluation of fitting of jacket pattern for elderly women using 3D simulation program

poster board ID 597-1-39

Country	Korea
Lead author	<b>Chuyeon Suh</b> (Dong-A University)
Co-author	Kyunghee Shin (Dong-A University)

This study designed a jacket pattern that reflected body types of elderly women as a way of increasing the utilisation of 3D body data. By using a 3D pattern design system in development, a pattern analysis was conducted using a 3D simulation program and an evaluation of clothes wearing through clothing pressure. A form of jacket was developed for elderly women that reflected body types of elderly women. The aim was to suggest basic data for automatic pattern design for elderly women. As a study method, a tailored jacket in the market was selected and developed into a jacket pattern that is suitable for body types of elderly women. The suitability of the pattern was analysed by conducting a pattern analysis using a 3D simulation program and evaluation of clothes wearing. Ready-made jackets of three brands that target elderly women among products of the 2011 S/S season were selected, and even though detailed designs (pockets etc) were different, a basic design was decided as a tailored jacket of a princess line which is the most general form. Jackets were unfolded flat and put into a pattern to conduct a pattern analysis, and size differences of the pattern were analysed through actual measurement of the pattern. Based on the results, a new jacket pattern was developed and suitability of the developed jacket was evaluated with a clothing pressure analysis through a virtual dressing system. According to pattern analysis of tailored jackets, with some differences between brands, they are not fully reflecting body types of elderly women and the clothing pressure was high. As a result of evaluating the jacket pattern suggested in the precedent study and the existing pattern by converting those into \*.dxf files on the 3D simulation, size differences of the pattern are reflected when dressing and therefore a virtual dressing system provided objective data for designing clothes for elderly women which can provide relatively clearer data than actual dressing evaluation. As a result of appearance evaluation of the study jacket, it was evaluated as suitable as a jacket pattern that reflected body types of elderly woman as it gained relatively high scores for front, side, and back and obtained a high score for overall silhouette and ease. It is also considered that utilisation of the jacket will be high as it obtained high scores in a gap evaluation and a clothing pressure analysis.

## Ecological education in communities: The ‘Green curtains of enlightenment’ program, Kobe city

poster board ID 617-1-40

Country	Japan
Lead author	<b>Ayako Oi</b> (Kobe Women’s University)
Co-authors	Noriko Kajiki (Kobe Women’s University) Katsuyo Ueno (Kobe Women’s University)

In recent years as environmental issues have been taken up, the ‘Green curtain’ has been part of environmental education in schools and summer indoor temperature reduction efforts now being reviewed. The ‘Green curtain’ refers to the vine set up to grow on places such as outside and in front of the windows so that plants cover much of the sunlight that enters the room in summer. This is made in order to avoid the rise of room temperature, so we can learn biotic diversity, and to decorate homes as a seasonal tradition. The Japanese government is planning a way to spread its use. When the earthquake occurred in eastern Japan, a part of major challenge became power saving. The green curtain drew further attention. In this way, the Environment Bureau of Kobe city started a ‘Green curtain enlightenment program’ in 2010. Its purpose is the raising of environmental awareness and to speed up pro-environmental behaviour among citizens. As more people get involved in the curtain project conducted mainly in facilities, more environmental education tools are made available to citizens of all ages to learn from outside of school. The project implementation period was from April until late October, during 2010 and 2011. The methods were survey and field investigation. The survey was distributed and collected by mail. There were 181 participating organisations and representatives of business facilities, and 140 responses, a recovery rate of 77.3%. In addition, during the 2011 business year, we observed and interviewed the 10 participating facilities. This study investigated the outcome of the ‘Green curtain enlightenment’ program’s ecological education. Applicants were local facilities. They judged the project on how tough it was, and how contented and satisfied they were throughout the project. According to the survey, it was found that they felt it was hard to run. ‘Quite tough’ made up 45.7%, the cause of contentment 59.7%, ‘very content’ 15.1%. Seventy per cent of all respondents thought this project was satisfactory. These cause of these results can be identified by visiting the facility. The green curtain has the ability to achieve different requirements for each facility. From this project, many kindergarten pupils learned a lot about the environment. Also the community facilities are used as a tool. To play a part in helping local communication. As mentioned above, a green curtain and environmental education can be immersed in regular activities, and can be evaluated as a resource to be implemented to target all ages.

## Meanings of home economics education based on Richards' euthenics: Ethics for a sustainable future

poster board ID 677-1-41

Country	Japan
Lead author	<b>Shoko Nishino</b> (Seinan Gakuin University)
Co-authors	Kazuko Sumida Harumi Kagawa (Sanyo Gakuen College)

Any practice of home economics needs ethics today. 'Future only with sustainability. No ethics, no future' was confirmed at Lucerne IFHE World Congress 2008 keynote address by Thomas Gröbly. We can also see this basic attitude in the IFHE position statement on home economics in the 21st century (2008). The aim of this study is to clarify the key concepts, values and ethics of the home economics profession for a sustainable future by thoroughly investigating Euthenics written by Ellen Swallow Richards (1910). Based on the philosophy of human ecology, Richards left a lot of achievements in interdisciplinary research related to health, human development and spiritual wellbeing. Among all those achievements, two writings – one written as a chemist and the other was done as an educator – were especially remarkable. Euthenics was the fruit of her thought from an educational point of view. It was widely recognised that Ellen Richards made an important contribution to organising the home economics profession. On the other hand, few investigations about today's meanings of her thoughts have been made in spite of their being meaningful and useful keys to solve our common problems. The findings show that Richards consistently pays attention to individuals as members of the community and ecosystem. In addition, some significant concepts for sustainable living and global wellbeing are explained in relation to human development. Furthermore, the structure of Richards's thought from a broad perspective is visually schematised.

## A comparison of the quantitative and qualitative (focus group) research methods for a study on poverty eradication projects: Capricorn district municipality in Limpopo Province (South Africa)

poster board ID 703-1-42

Country	South Africa
Lead author	<b>Makgoshi Masipa</b> (University of Venda)
Co-authors	Lucy Maliwichi (University of Venda) Stephen Oni (University of Venda)

Research into local poverty eradication projects was carried out in Capricorn District Municipality (CDM), one of the five districts in Limpopo Province of South Africa. The objectives of the research were to: identify existing poverty eradication projects in CDM; analyse the determinants of success or failure of the projects; and to make appropriate policy recommendations for the promotion of sustainable poverty eradication projects in CDM. The poverty eradication projects were categorised into agriculture, consumer science, food technology, industrial projects and service provision. The category with the most projects was agriculture; these projects were more sustainable. The consumer science and food technology categories also had many projects. Both qualitative and quantitative methods were employed to research local poverty eradication projects. The aim of this study was to investigate the significance of qualitative research methods in research. Qualitative research was in the form of focus group discussion involving managers of local municipalities, councillors, and managers from the department of agriculture. The findings were divided into three sections: section one presented quantitative method results; section two presented focus group discussion; and section three presented in-depth interview results. It was concluded that focus group discussion is a warm method for collecting data when compared with quantitative research methods because people are asked about their perceptions, opinions, beliefs and attitudes and therefore allowed freedom of speech.

## Do you know how to double $\frac{3}{4}$ of an apple? Pupils' understanding of fractions in home economics

poster board ID 220-1-43

Country	Sweden
Lead author	<b>Albina Brunosson</b> (Kristianstad University)
Co-authors	Goran Brante (University of Gothenburg) Hanna Sepp (Kristianstad University)

The point of departure of this study was to investigate pupils' understanding of fractions when these arise in practical learning situations in home economics. Fractions can appear in home economics in various ways. Most common is the occurrence of fractions in recipes e.g.  $\frac{3}{4}$  cup, and sometimes pupils are required to double or divide a recipe. According to the syllabus for mathematics, pupils in the sixth grade should have an elementary knowledge of fractions, which includes the addition and division of fractions. The aim of the study was to discover what it takes for pupils in the sixth grade to learn how to double  $\frac{3}{4}$  of an apple when it occurs in a recipe. The method used was learning study and the theoretical framework was variation theory. A maths test was carried out which tested the pupils' (n=18) theoretical understanding of fractions to see whether they could transfer the knowledge from one learning context to another. The result showed that most of the pupils had a good understanding of fractions in a theoretical context as well as in a practical one. However, about a quarter of the pupils had problems understanding fractions. The results indicate that one critical aspect was to understand that there is a difference between four parts and four quarters. A further critical aspect was to understand the relationship between the part and the whole in a fraction. The results also showed that it was difficult to comprehend variations of the same fraction, e.g.  $\frac{3}{4}$  of a carrot has the same mathematical value as  $\frac{3}{4}$  of a potato. The meaning of the concept 'double' was not clear, which resulted in some problems. The study also showed how mathematics and home economics are closely interrelated. A subsequent study will examine the possibilities of learning mathematics, as well as other subjects, through home economics, with food and meal situations as a starting point. This study is an example of how sustainable teaching might be accomplished, and how students' learning in home economics might be highlighted.

## Effective lessons from experience in early childhood education and care in Japan

poster board ID 695-1-44

Country	Japan
Lead author	<b>Kiyomi Kuramochi</b> (Tokyo Gakugei University)
Co-authors	Kyoko Kaneko (Motobuto Junior High School) Michiko Seno (Kagawa University) Mutsuko Abe (Takehaya Junior High School/Tokyo Gakugei University) Kazue Mochizuki (Akita University)

In Japan, home economics is the only subject for learning child care and human development in the education of junior-high and senior-high schools. A recent educational guideline of the Ministry of Education, Culture, Sports, Science and Technology states that childcare education should be improved and the actual experience of being with babies and children needs to be incorporated into education. In fact, a lot of studies have showed evidence of the efficacy of students' experience in early childhood education and care (ECEC). But there is still an insufficient number of effective lessons before and after ECEC, so students can't learn deeply through ECEC. The aim of this study is to develop lessons after ECEC in Japanese junior-high school. It is important for students to reflect on ECEC and learn child development and the way to care. This study analysed lessons where the teacher made students write the narrative after ECEC. The narrative is the document that the student writes over time about his or her experiences and feelings. While the students were writing their narratives, they were able to reflect on their experience and better understand the features of young children.

## Effects of the obesity control program on body composition and physical fitness levels in obese elementary school students

poster board ID 81-2-1

Country	Korea
Lead author	<b>Soon-Nam Choi</b> (Sahmyook University)
Co-author	Hyun-Jung Kim (Sahmyook University)

Increase of fast foods and food service industry thanks to westernised diet patterns in accordance with economic changes has led to an increase of morbidity rate of childhood obesity. Excessive nutrition, stress and lack of exercise due to complicated social lives have caused inequality of physical development and obesity. The purpose of this study was to identify basic materials for the education of elementary students in the area of obesity prevention and management from pre- and post-test studies of weight control nutrition education programs. The program for dietary education was performed during the summer vacation. Body composition was measured at the start and finish of the program. The schedule consists of learning in the morning, exercise in the afternoon and life habit education and nutrition counselling after dinner from 7am to 9pm. Basic nutrition education was given and practice and counselling were accompanied to enhance effectiveness after theoretical education. Aerobic exercise and muscular strength education were given with play to enhance PE effectiveness. Meals consisted of caloric intake fit for children in the period of growth, consisting of carbohydrate; protein; fat with 65:15:20% respectively. This study measured body weight, ratio of body fat, BMI (body mass index), degree of obesity and ratio, nutrient intake, and physical fitness of 42 students with higher than 141% degree of obesity. The average age, height, weight, and BMI were 11.55±0.94 yrs, 152.21±7.58 cm, 68.33±8.63 kg, 29.37±1.81 kg/m<sup>2</sup> for the males and 11.15±0.89 yrs, 145.46±6.99 cm, 59.18±11.61 kg, 27.55±3.36 kg/m<sup>2</sup> for the females. Before beginning the obesity program, the mean body weight, BMI, degree of obesity, and WHR (waist-hip ratio) of the 42 students were higher than those of same aged students. After conducting this obesity management program, weight, BMI, degree of obesity, and WHR all decreased ( $p < 0.05$ ,  $p < 0.001$ ) while their physical fitness level increased. Their performance in an agility test significantly decreased ( $p < 0.05$ ). In conclusion, continuous monitoring and positive changes in exercise and dietary habits are needed for the positive implementation of an obesity management program with respect to senior students elementary school students.

## Biodegradation of nonwoven fabrics in soil

poster board ID 139-2-2

Country	United States
Lead author	<b>Mary Warnock</b> (University of Arkansas)
Co-authors	Duane Wolf (University of Arkansas) Edward Gbur (University of Arkansas)

Biodegradation of nonwoven fabrics in soil may offer an alternative to landfills as a method of fabric disposal. A field study was conducted to determine the biodegradation rates of nonwoven rayon, cotton, polylactic acid and polypropylene fabrics in a Captina silt loam soil under warm, moist conditions. Fabrics were placed in the soil at a depth of 10cm and five replications of each fabric were excavated following 0, 7, 14, 21 and 28 days of burial to determine the amount of fabric remaining. The biodegradation of rayon and cotton was described using first-order kinetics and rate constants were determined to be 0.094 and 0.056/day, respectively. No biodegradation of polylactic acid and polypropylene was observed during 42 days. The half-life values, or time required for 50% loss of the materials, was 7.4 and 12.4 days for the nonwoven rayon and cotton, respectively. When sufficient fabric was recovered, the tearing and shear strength parameters were determined using standard AATCC and ASTM methods. Data from the field study indicated that incorporation of the nonwoven rayon and cotton into surface soil may offer an effective alternative to landfills for fabric disposal.



### How to support school boards in describing their school meal needs

poster board ID 161-2-3

Country	Germany
Lead author	<b>Margot Steinel</b> (Hochschule Anhalt (FH))
Co-author	Lydia Pflug (Hochschule Anhalt (FH))

#### Aim

School catering in Germany often suffers from inferior quality because the service specifications between school board and catering company are incomplete and unclear. School boards do not have the expertise to describe all quality characteristics for the school meals. Standardised service descriptions often cannot be used because the school meal needs vary from school to school. The aim of the paper is to support school boards in describing their school meal needs in the form of a service specification.

#### Method

For the description of the school meal needs in a service specification quality characteristics were worked out based on the quality standards for school meals by the German Nutrition Society. For each quality characteristic different characteristic values were worked out which may be relevant in different types of schools. All these characteristic values for the quality characteristics were composed in an internet application 'Leistungsverzeichnis-Generator' (generator for service specification).

#### Results

The internet application 'Leistungsverzeichnis-Generator' (<http://www.schulverpflegung.bayern.de/service/lv-generator/index.html>) helps the school board in describing their school meal needs by offering different characteristic values for each quality characteristic and recommending the preferable characteristic value. The service specification will be worked out from all quality characteristics in a modular way. This service specification can be used for a tender.

#### Conclusion

Internet applications are a valuable tool for tasks which need specialised knowledge, but do not have to be carried out very often. The preparation of a tender for school meals is such a task.

### Food technology education in the 21st century: Teaching to a design brief

poster board ID 170-2-4

Country	Australia
Lead author	<b>Kay Stubbs</b> (East Doncaster Secondary College)

I am currently teaching at East Doncaster Secondary College in Melbourne. This is a fairly typical eastern suburbs school. It has a very multicultural student population and is fairly academic. Food technology continues to be an extremely popular subject and numerous classes run from years 8–12. Our students are not unlike the usual food technology or home economics students and adolescents around the world. They love to cook and they love to eat but they don't always respond very positively to theory work. What I have tried to do in my programs is link theory with practice. I make the learning relevant and fun while allowing students opportunities to develop independence, initiative and collaborative skills to design and create products according to design briefs. Our students are well aware of the potential to design and create having been bombarded by very popular TV cooking shows such as Masterchef and My Kitchen Rules. These are great inspiration for my classes and have dramatically increased numbers! The technology process allows students to investigate, design, produce and evaluate. In doing so they reflect upon their learning and students are learning by doing. As food technology educators I believe that the teacher's role is one of facilitator of learning where students are at the centre. We can encourage students to use their initiative, develop independence and take responsibility for their own learning. Student-centred learning as opposed to teacher directed. Gone are the days of producing scones from a standard recipe; this has been replaced by 'Design a pinwheel sweet or savoury scone for Bakers Delight'. Students work in teams to develop a recipe following a design brief. They take an active role in their learning and in doing so have some ownership over it. They make choices, develop ideas, solve problems and explore a range of possibilities resulting in improved collaborative work skills, more excitement and engagement. I get tired of hearing students refer to our subject as 'cooking'. In food technology we do so much more. Students develop valuable skills, such as higher order thinking, collaborating, negotiating, information seeking, forming opinions, decision making and communicating solutions. These are skills and attributes that I am sure we all agree are essential for young people to be life-long learners. I would like to share with you a design activity that is based around the technology process of investigating, designing, producing, evaluating – Japanese sushi activity.

## Way of life in rural areas in Thailand

poster board ID 179-2-5

Country	Thailand
Lead author	<b>Ampairat Aksornprom</b> (Sukhothai Thammatirat Open University)

### Aim

Thailand mostly consists of rural areas. So rural areas could reflect Thai's contemporary way of life. The objective of this research was to survey the way of life in the rural areas of Thailand.

### Method

The population of this research was farmers, village leaders and civil servants from the north, the northeast and central regions in Thailand. 249 samples were chosen by multistage selection. The data were collected by 18 focus group discussions, and were analyzed using content analysis.

### Results

The results showed that in Thai rural areas nowadays they were mostly nuclear families. There were 2–6 persons living in the house; grandparents tended not to live with parents even when there were grandchildren in the family. Most adults earned their living with unskilled labours. The average age was the 51–61 years old group. There were 28.5% farmers, especially rice growers. The size of land owned by farmers varied from 4–80 square kilometres. Most of farmers grew plants in rented property and land and some households were in debt. Family financial problems caused couples to quarrel frequently, and led to anxiety in the children. Some of them wanted to quit farming but did not know what to do. Most young people did not value being farmers because they thought professional farmers had low status and irregular income. Therefore, many had ambitions to migrate to urban areas to be employed in factories. Many children were from divorced families and in such cases grandparents tended to undertake child care. So these children felt lonely and suffered low self-esteem because of generation gap. There was a tendency towards solving negative feelings by overspending; suicide among the younger generation was also quite prevalent. The neighborhood relationships were not particularly strong. Many people were pre-occupied only their living and their family's financial problems. Labour exchanges were replaced with labour hire. There was more evidence of squandering than self-sufficiency. They didn't plant kitchen garden vegetables or cook, but bought everything, even all daily meals from mobile bazaars. Village wisdom was used for commerce rather than to serve villagers. Even though they joined traditional activities, for example Loi Kratong, Songkran etc, respondents to the research tended not to consider the preservation of resources, especially water, for occupation and living.

### Conclusion

The way of life in Thailand's rural areas is different to former times. It was found to reflect some weaknesses. Rural people should start to use the concept of economic sufficiency in household consumption and occupations.

## Trehalose as an excellent glycoside for improving the quality of vacuum-cooked foods

poster board ID 185-2-6

Country	Japan
Lead author	<b>Michie Moriyama</b> (Aichi Gakusen University)
Co-authors	Tomoko Yamauchi (Nagoya Women's University) Kazuko Oba (Chubu University) Atsumi Koide (College of Nagoya Women's University) Atsuko Yamamoto (Aichi Gakusen College)

### Aim

Vacuum cooking is one of new methods for the cooking of food. We already reported that vacuum cooking prevented more oxidation of food materials and degradation of vitamin C during cold storage after cooking than the boil cooking. On the other hand trehalose is known as a functional glycoside which has functions such as inhibition of browning reaction, keeping freshness of vegetables, protecting protein structure and protein aggregation. In this study, we demonstrate some new excellent points of trehalose such as higher maintenance of radical scavenging activity, polyphenol content, keeping tone of color and high preference to vacuum-cooked foods by young people.

### Methods

Japanese radish, carrot, sweet potato, taro, spinach, apple and banana were cooked by a vacuum-cooking method with and without sucrose or trehalose as a sweetening compound. Radical scavenging activity, polyphenol content and tone of color [brightness (L\*), redness (a\*) and yellowness (b\*)] of samples were determined in the several cases, before cooking, soon after cooking, one week after cold storages and two week after cold storages. Young people's preference to vacuum-cooked foods was evaluated sensorily at one-day and one-week after cold storages. Sensory evaluation of six items for cooked apples and sweet potatoes by 30 young college students was done for the cooked ones with and without trehalose and sucrose. The data were analysed using SPSS and t-test.

### Results and discussion

Radical-scavenging activity and polyphenol content in the seven foods – Japanese radish, carrot, sweet potato, taro, spinach, apple and banana – vacuum-cooked with trehalose were significantly higher soon after cooking and after cold storage than those in cooked ones with sucrose. Sensory evaluation on cooked apple after one week cold storage by young college students resulted in higher points for the all items of flavour, taste, texture, sweetness and total evaluation of cooked ones with trehalose than that cooked with sucrose. The above panelists also preferred higher values of brightness (L\*) and yellowness (b\*) of sweet potato cooked with trehalose than the lower values of cooked ones with and without sucrose at one week after cold storages. These results suggested that trehalose is a useful compound for keeping high content of functional factors in the plant food materials during vacuum-cooking and cold storages. So we suggest trehalose is a superior compound in glycosides for improving the qualities of cooked plant foods cooked by vacuum-cooking.

## Educational environments of migrant-workers' children in Shanghai, China

poster board ID 238-2-7

Country	Japan
Lead author	<b>Feixue Wang</b> (Nara Women's University)
Co-authors	Xu Shangshang (Nara Women's University) Nakayama Toru (Nara Women's University)

In China, the family registration has been divided into 'rural register' and 'urban register', with the rural register accounting for about 60 per cent of the national population. Since the opening up of China's economy in 1979, more and more peasants have begun to work in the city away from their home with the rapid development of the economy. As a result, their family also tends to move into and stay together in the city to make a living, not temporarily but for a long time. It was once very difficult for children from rural areas to receive formal education in urban schools. In Shanghai, the first 'migrant-workers' school' was established to solve this problem in the 1990s. However, at that time those schools had to face several issues including lack of capital, not exactly meeting the government standards in various aspects and eventually the validity as the educational institution was also subject to doubt. Fortunately, in recent years migrant workers' children have been able to enter the public schools even if they are not on the urban register in Shanghai. In addition, schools for migrant-workers' children have been receiving help from Shanghai's government and private enterprises, and the improvement of their education environment is expected. Though schools for migrant-workers' children can get funds from society, the education environment is still insufficient compared with the general public schools. With the understanding of such a background, I carried out a questionnaire and a visit-investigation in October 2010 with following aims. Firstly, I wanted to compare the institutions and environment of schools for migrant-workers' children and public schools and then clarify their differences. Secondly, I plan grasp the consciousness towards the education environment of the schools and the living environment of their students. Finally, based on the understanding of the improvement of the situation of schools for migrant-workers' children, being supported by society, and the corresponding influence, I wanted to probe into the way in which the education environment should move forward. In this study, parts of migrant-workers' schools and public schools were investigated and the following were clarified: 1. By comparison of the facilities and the environment of migrant-workers' schools and public schools, big differences are not so clear. But the school buildings of migrant-workers' schools are old; 2. Compared with children of public schools, on one hand migrant-workers' children work much harder. On the other hand, they can not spare time to participate in the extra curricular activities because they have to help their parents even during summer vacation; 3. Concerning subsidies, public schools can get twice as much as migrant-workers' schools. This problem needs to be reviewed and calls for solution in the future.

## The conscious meal: Ideas for studies in a PhD thesis

poster board ID 239-2-8

Country	Sweden
Lead author	<b>Cecilia Magnusson Sporre</b> (Orebro University)
Co-author	Inger M Jonsson (Orebro University)

The aim is to discuss ideas for a newly started PhD thesis. The focus is on a rather tacit concept – 'The conscious meal' – that was the description of a meal consisting of taste, nutrition and aesthetic expressions in the 1980s. This holds for the curriculum of Culinary Arts and Meal Science in Sweden. Is it possible to deepen, develop and consolidate this concept and use it in information about food and meals? At The School of Hospitality, Culinary Arts and Meal Science in Örebro University, Sweden, the basis of the education is science, practical skills and aesthetics. These three forms of knowledge is the fundamental platform for the subject. The unique method used in education and research is named FMM (Five Aspects Meal Model i.e. the room, meeting, product, control management system giving the atmosphere). The method can be used as a planning and analysis tool for public and private meals. Another useful method is the original and the applied versions of the French Sapere method; an experimental method using raw materials from the food sector, studying and working with the individual components and sensory experiences in the meal. Possible methods to discuss the concept with key groups will be interviews, research circles, focus groups, observations, and maybe analysis on grounded theory etc. Ideas of studies to be discussed include: Study I: Daily meals for people with intellectual disability in community living – results forthcoming; Study II: Culinary Success Factors – results forthcoming; Study III: The meal as a pedagogical tool; Study IV: Children's meals. New skills and influences affect our approach to the meal of today. Developing the concept of 'The conscious meal' could provide tools for education and eating guidelines in a holistic way. This may raise the awareness both in public and private meals.

### Importance of establishing career and financial counselling centres on campuses of women's colleges in Japan

poster board ID 240-2-9

Country	Japan
Lead author	<b>Michi Takeda</b> (Kobe Shoin Women's University)
Co-authors	Tahira Hira (Iowa State University) Masae Shouho (Fukuyama City University) Mika Oishi (Kamakura Women's University) Miki Yamashita (Notre Dame Seishin University)

#### Aim

Under the prolonged recession in Japan, there has been an increase in the number of college students who are forced to pay their tuition by taking high interest student loans or receiving a scholarship/grant with obligation to pay back with interest rate after the graduation. Although the depression has created a challenge for all college students in finding a job after graduation, female students are more affected because of gender role norms in Japan. This situation makes it more difficult for these female graduates to be financially independent. Furthermore, female students do not have easy access to professional advice to develop a career plan.

#### Method

Data for this study were collected through interviews with 16 counsellors at four school career counselling agencies in Japan (Okayama, Fukuyama, Kobe and Kamakura). Semi-structured interview schedules were used to conduct interviews during the months of July and August, 2011. Most of the interview questions focused on following areas: contents of student counselling, system, counselling feedback, and collaboration with parents and other agencies. These data will be used to develop and propose a model to establish financial and career counselling centres on campuses of women' colleges in Japan.

#### Findings

Preliminary findings have shown that the number of students who demand scholarships has been increasing; however, there is less awareness that the scholarships are the debt.

1. Both JASSO (Japan Student Services Organisation) and school counselling agencies currently are required to provide students only an income/expense report. They do not educate students about developing future financial plans including the repayment of student debt after graduation.
2. They have little chance to talk about their families' financial situation with their parents. As a result, they are not educated enough about their financial future plan by family and school.
3. Although college counselling agencies manage personal information of each student, these agencies function independently and do not centralise information provided by the supervisor.

#### Conclusion

Based on these findings we recommend that financial and career counselling centres be established to gather personal data for financial and career counselling in order to continue using it until graduation. Supervisors should manage this data at a central location and use the information to provide appropriate advice and counsel to the students. College career counselling agencies must offer multiple services including personal, financial, and career counselling.

### Parent-and-child program for the safe use of fire and gas stoves

poster board ID 278-2-10

Country	Japan
Lead author	<b>Machiko Yamashita</b> (Osaka Gas Co)
Co-authors	Ryuta Kawashima (Tohoku University) Tetsuya Onishi (Osaka Gas Co) Mika Takakura (Osaka Gas Co) Eriko Kaibara (Osaka Gas Co) Yoshie Nishimoto (NPO Child Support Project) Hideki Matsubara (Osaka Gas Co) Aya Hosoe (Osaka Gas Co) et al

#### Aim

Using a fire is a privilege for human beings. Yet nowadays very few children have opportunities to use a fire in Japan. We developed and performed an exclusive program of using a fire for children's healthy development.

#### Method

Our previous study shows clearly, by way of a near infrared spectroscopy, that the bilateral prefrontal cortex of children was significantly activated by the acts of using a fire. Based on this result, we have developed the new program, which consists of five steps – instructor gives general safety guidance; child strikes a match with assistance of parent; instructor demonstrates ancient method of fire-making; parent and child in pairs make a fire themselves by the ancient method of fire-making; child lights a gas stove with assistance of instructor. Finally, children receive a certificate of good maker and user of a fire.

#### Results and discussion

Between March 2010 and the end of July 2011 we invited 160 parent-child pairs to 29 sessions. Most children achieved striking a match and lighting a gas stove through the session. Parents and children had active communication during the co-operative process of the ancient method of fire-making. We observed that, through our parent-and-child program, children learned how to use a fire properly and became familiar with fire. We also observed, in our previous study, that the acts of using a fire stimulates the prefrontal cortex of the children. We firmly believe that learning how to use a fire properly and to cook with a fire play an important role in healthy development of children.

## Case study on resident lifestyle in natural symbiotic environment: Actual lifestyle conditions and thermal environments in environmentally symbiotic houses in Nara, Japan

poster board ID 286-2-11

Country	Japan
Lead author	<b>Ikuko Banba</b> (Kinki University)
Co-authors	Michiyo Azuma (Kio University) Hiroko Kubo (Nara Women's University) Norio Isoda (Nara Women's University)

The rise in environmental problems has led to the consideration of living symbiotically with our surrounding natural environment. This in turn has led to new developments in symbiotic housing. In this study, we have carried out a continuous thermal environmental and lifestyle research of houses located in a natural forest with natural geographical features in a detached housing area. In addition, the purpose of this case study is to examine the relationship between the natural environment around such a dwelling and its indoor comfort level. This study was conducted in ten detached cooperative houses in Nara City, Nara prefecture, Japan. These houses were constructed in a coppice on the north side in a residential area that was developed completely by 2005. With the common consent of the residents, each of these houses was planned cooperatively and constructed by mostly using renewable materials. The goal of the residents was optimal energy consumption in facility planning and daily living. In order to investigate the thermal environmental conditions, the indoor temperature and humidity in the living areas (living-room, bedroom, etc) of each house were continuously recorded at intervals of 10 minutes by using compact recording devices (placed at a measuring height of 0.6 m). Further, we recorded the outside temperature and humidity in the residential area. In addition, we obtained the relevant data on the residents' lifestyle by means of a survey that included questionnaires and interviews. This study has been carried out continuously since July 2005. The outside air temperature of the area (which was shaded due to the surrounding trees) was approximately 1.0°C lower than the officially measured value obtained by the Nara region meteorological observatory in summer. For the prominent cases, one of the houses had large windows on the south and north sides (for good air circulation in the house), and it possessed no air-conditioning. Moreover, because the houses are located on a slope, most houses have underground spaces where their north side meets the ground. The air temperature of some of these underground spaces was nearly 28°C in summer, and the temperature fluctuation was small in these spaces. However, the relative humidity in these spaces varied largely and exceeded 70%. The results of this study suggest that houses that have been planned and constructed in natural environments in order to aid natural symbiosis in terms of daily optimal energy consumption influence their outdoor and indoor thermal environments.

## Evaluation and application of tea by means of taste sensor

poster board ID 310-2-12

Country	Japan
Lead author	<b>Uchiyama Yumiko</b> (Otsuma Women's University)
Co-authors	Omori Masashi (Otsuma Women's University) Chin Eigo (Intelligent Sensor Technology Inc)

In recent years, various health benefits of drinking tea have emerged. A tea is a kind of beverage for those who prefer its colour of infusion, aroma and taste. A good tea is determined by a comprehensive human sensory evaluation. The essence of colour and sound have been targeted for a their physical quantity, taste and aroma is measured by the amount of target chemicals. Therefore research objective measurement technologies for smell and taste have been delayed. Thus, evaluation of the aroma and taste of tea still relies on subjective human functions. In this study, the authors carried out an evaluation of green tea, oolong tea, black tea and post-fermented tea using a taste sensor. In addition, fresh tea leaves, withered leaves, rolled leaves and fermented leaves were measured and evaluated for changes in taste due to the fermentation process. We objectively evaluated the change in the taste of teas with different degrees of fermentation using a taste sensing system and found that the astringency and umami taste are diminished, while the bitterness level increases with increasing degree of fermentation. Second, we evaluated the difference in the taste of four types of tea, namely green tea, oolong tea, black tea and postfermented tea, and found that the result of PCA analysis based on the taste information of astringency, bitterness and umami taste is in good agreement with the order of the degree of fermentation. This demonstrates that the taste sensing system can be used effectively in the quality control of tea fermentation. In the future, we will create a database on the different tastes of teas with several parameters, including harvesting season, methods of fermentation, and ways of brewing. We hope that this technology will contribute to the development of the tea industry in the world.

## Characterisation of pectic polysaccharides of Ebiimo (*Colocasia esculenta* (L.) Schott)

poster board ID 320-2-13

Country	Japan
Lead author	<b>Yukari Muramoto</b> (Kyoto Prefectural University)
Co-authors	Kimiko Ohtani (Kyoto Prefectural University) Motoko Matsui (Kyoto Prefectural University)

### Aim

Ebiimo (taro), a variety of *Colocasia esculenta* (L.) Schott, is one of 'Kyo brand products', and an important ingredient for Kyoto cuisine. Ebiimo is characterised not only by the Ebi (shrimp) like shape produced by the unique cultivation method but by the texture, farinaceous and not at all soggy when cooking. In this study, the cell wall polysaccharides, especially the pectic polysaccharides, were investigated in order to clarify the relationship between the composition of pectic polysaccharides and its texture comparing with those of Satoimo (taro), a popular variety of *Colocasia esculenta* (L.) Schott, in Japan.

### Methods

Ebiimo, 'kyoto-ebiimo1gou' and Satoimo, 'ehime-iyobijin', were harvested in 2010 in Kyoto Prefectural Agriculture, Forestry and Fisheries Technology Centre (Kameoka, Kyoto, Japan). The pectic polysaccharides were fractionated by the sequential extraction by the cold-water, hot-water, and 0.5% ammonium oxalate. Each extract was added to three volumes of ethanol to precipitate the polysaccharides. The starch mixed in each fraction was removed by the degradation with  $\alpha$ -amylase (from *Bacillus subtilis*). Total sugar content was determined by the phenol-sulfuric acid method and the content of uronic acid was by m-hydroxydiphenil method. Sugar composition was determined as alditol acetate derivatives after hydrolysis by using GLC (GC-2014 Shimadzu) equipped with DB-225 column (J&W Scientific) at 190°C. The texture was measured by Creep meter (RE2-3305B Yamaden).

### Results and conclusion

Total contents of pectic polysaccharides per 100g of fresh edible portion were less in Ebiimo (3.34g) than Satoimo (3.60g), but the hot water-soluble polysaccharides were more in Ebiimo (1.07g) than Satoimo (0.79g). Neutral sugar compositions of the hot water-soluble polysaccharides of Ebiimo mostly consisted of glucose and galactose (1: 0.60), and those of Satoimo were consisted of glucose, galactose and arabinose (1: 0.29: 0.15). The content of uronic acid was almost the same percent, 40%. The polysaccharides extracted by 0.5% ammonium oxalate were almost consisted of uronic acid both in Ebiimo and Satoimo. By the measurement of texture after boiling, Ebiimo was shown to be more brittle than Satoimo. The degree of esterification of uronic acid and the structure of the polysaccharides fractionated are now under investigation.

## Studies on the special fibre material produced locally and its utilisation

poster board ID 324-2-14

Country	Japan
Lead author	<b>Miki Inoue</b> (Tohoku Seikatsu Bunka University)
Co-author	Shoko Kawamata (Tohoku Seikatsu Bunka University)

Despite the recent recession, Tohoku district in Japan has attracted attention as a new clothes market, and the large suburban shopping malls are established in and around Sendai. Meanwhile, the great market Sendai in Tohoku district, the creation of the new style of rag trade is expected by the local commerce and industry. A series of industries from the branches of fibre manufacturing to sewing parts have once prospered in the Tohoku district. But now, the scale has reduced with industrial globalisation. In addition, due to East Japan's great earthquake disaster of 2011, it has been supposed that the Japanese textile industry has diminished. Even in the present situation, the special fibre materials have developed from fibre industries such as silks with crimp. Usually silk fibre is not crimped, but the new silk fibre is twisted strongly when taking the silk fibres from the cocoons. We focused our attention on this silk and studied the properties and the utilisation of this new fibre material. The new silk textile 'Silk II' and the usual silk textile were compared. In terms of the dyeing tests, the absorbance of dye solution and the colour-fastness of dyeing cloths were measured after dyeing with acid dye. The tensile strength tests were measured with the constant rate of the specimen tensile extension system. A simulated fashion brand 'Mishima & Co' using the new silk was established in the class of Tohoku Seikatsu Bunka Univ. The products were made by utilising the characteristics of the new silk textile. This new silk textile showed high quality in terms of dyeing properties, strong colour-fastness and high tensile strength compared with the usual silk. Furthermore, this new silk textile showed that it was a high stretch material. Besides these experimental results, the products of the formal wear and the home wear with this new silk textile were planned, and the two brands were managed. These fashion items were released by exhibitions and a website and they were also featured in the print media. Development of the fashion industry in the Tohoku region and sustainable development of the clothing life will be enhanced by an approach like this.

## A study of home economics curriculum to establish sustainable living among Japanese high school students in unequal society

poster board ID 329-2-15

Country	Japan
Lead author	<b>Atsuko Fujita</b> (Ehime University)
Co-authors	Setsuko Nakayama (Chiba University) Midori Otake (Tokyo Gakugei University)

### Aim

The prevalence of poverty among children is becoming a social problem in Japan, as the number of parents expelled from regular employment and public welfare services has increased rapidly in recent years. Breaking away from poverty and nurturing capabilities for leading an independent life is necessary to establish a sustainable future for these children. This research, therefore, is focused on high school students, with the purpose of developing a home economics curriculum that nurtures the capabilities for leading an independent life for high school students who are finding it difficult to have hope for their future and to gain social, economic, and psychological independence.

### Method

A survey concerning day-to-day life and labour was conducted to understand the current status of high school students. Issues that came out of this survey were sorted, and a curriculum was developed. The curriculum was designed with four underlying pillars: to gain an understanding of the expenses in day-to-day life; to understand the importance of social insurance; to understand the current status of disintegration in the employment system and the role of the safety net; and to understand the theoretical concepts of poverty and exclusion, as well as the right of entitlement for survival. These lessons were conducted at three high schools and their educational effects were analysed.

### Results and discussion

Poverty led to the emergence of high school students forced to take on long hours of part-time work amidst the harsh employment environment, in order to supplement their academic and household expenses. Poverty impacts the day-to-day life of high school students and triggers psychological and physical problems, as well as impacts academic studies. Students are apprehensive about the finances for their future, from academic advancements, employment to marriage and child rearing, as well as receiving nursing care. The situation is such that they cannot have a positive outlook for their future. Upon conducting lessons based on this curriculum, the following educational effects were achieved:

- Students gained an understanding of the social welfare system and how the available safety nets differ due to the disparity from difference in employment systems.
- Students gained an objective understanding of their future through experiential education.
- Students expressed and shared their feelings of despair and anger, and there was emergence of awareness for initiating change, such as demanding fair treatment for workers.

## Fathers' practical supports play an intermediary role between mothers' interpersonal pressure and life adaptation

poster board ID 333-2-16

Country	Taiwan
Lead author	<b>Pai-Chwen Liu</b> (National Taiwan Normal University)

It is an important milestone when one becomes a mother for the first time. Due to the lack of experience, parental stress comes in tandem with the fear of becoming ineffective parents, which will influence children's growth and development. There is great significance in promoting a mother's wellbeing and a wholesome family life through comprehending parenting stress. The purpose of this study was to explore the relationship between the mother and the father to examine the intermediary effect of the father's practical support on the mother's interpersonal pressure and life adaptation. There were 466 new mothers who had a first-born child aged 2.5 years old that participated in this study. Each participant completed two kinds of questionnaires: 'The New Mother's Parenting Stress Scale' and 'The Scale of Spousal Support'. By using SPSS19.0, the results showed that mothers' perceptions in relation to spousal support were in the above average level. Also, there was an above average level of the mother's interpersonal pressure and her adaptation to life stress. In addition, the regression analysis indicated that there were strong relationships between the mother's interpersonal pressure (A) and the father's support (B) ( $t=-6.46, p=.000$ ), the father's support (B) and the mother's life adaptation (C) ( $t=-3.92, p=.000$ ), as well as the mother's interpersonal pressure (A) and the mother's life adaptation (C) ( $t=-13.61, p=.000$ ). However, mothers' interpersonal pressure (A) and fathers' support (B) were used to predict the variable of mothers' life adaptation (C) at the same time. The impact of fathers' support (B) to mothers' life adaptation (C) decreased ( $t=-0.54, p=.587$ ). The strong influence of the mother's interpersonal pressure (A) on mothers' life adaptation (C) was still the same ( $t=12.81, p=.000$ ). Therefore, the intermediary effect of fathers' practical support on mothers' interpersonal pressure and mothers' life adaptation was demonstrated.

## A study of the dietary life and the cooking habits and skills of college students in Japan and Korea

poster board ID 345-2-17

Country	Japan
Lead author	<b>Rhee Onkoo</b> (Nagoyakeizai University)
Co-authors	Komenami Naoko (Kyoto Women's University) Jang Jeongoak (Kyungwon University) Suda Ayumi (Osaka Yuhigaoka Junior College) Yukawa Natsuko (Kyoto University of Education)

### Aim

Recently in Japan and Korea both eating out and the simplification of food are increasing in frequency, hence cooking opportunities at home are accordingly in decline. These two countries are confronted with serious problems related to the food life of college students in particular who commonly eat out and resort to take-out food. This is a comparative study of the cooking habits and skills of two countries' college students who share a common problem with their dietary life. Additionally, an attempt was also made to reveal a substantial difference in dietary life by comparing their best cooking practices.

### Method

A questionnaire was administered from Dec 2009 to Mar 2010 to 453 (158 males and 295 females) college students in Japan (Osaka, Kyoto and Nagoya) and Korea (Seoul). The students were asked about their consciousness of cooking habits and skills by subject evaluation, their level of cooking and cooking situations at home. A statistical analysis was performed using SPSS (ver. 15.0).

### Results

Mothers were the main cooks at home in both countries. The percentage of students who cook regularly by themselves was low: 18% in Japan and 7% in Korea. The motive for self-cooking was attributed to 'living alone' (53%) in Japan and to 'busy parents' (53%) in Korea. Students who like cooking were 34% in Japan and 21% in Korea. As to the level of cooking skills, out of the 30 questions, there was an average of 16 responses of 'I can cook' from Japanese students and nine responses from Korean students, thus both countries' students have low basic cooking skills. As for the Japanese students, the scores relevant to their consciousness of cooking habits and skills were positively related to more attention to health, eagerness to cook and money saving. However, on the negative side, they often resorted to instant food and simplification of food. The Korean students, on the negative side, were hesitant to cook, and their traditional sense of value was significantly higher. Japanese students tend to cook dishes of foreign origin such as curry rice, fried rice and other simply arranged foods, while Korean students cook traditional home dishes with kimchi.

### Conclusion

College students in Japan and Korea had different opinions about preparing meals, but as to the level of cooking skills both countries scored low. Therefore, both countries' students need to develop a sense of basic cooking education.

## Diversity of baker's yeast (*Saccharomyces cerevisiae*) in the bread of the world

poster board ID 367-2-18

Country	Japan
Lead author	<b>Hiroko Nagano</b> (Gifu University)
Co-authors	Miho Murayama (Kyoto University) Tohru Suzuki (Gifu University) Xujun Han (Gifu University) Eiji Inoue (Kyoto University)

### Aim

Bread has been a popular food from ancient times all over the world. Traditional breads including naan, chapati, and montou are produced in stone ovens, tandoors, or other types of oven, with steam, or other means. Commonly, dry commercial yeast (*Saccharomyces cerevisiae*) has been used in the fermentation of bread. Are there differences in the species of *Saccharomyces cerevisiae* used in different kinds of bread? Is this due to the different fermenting agents, distinctive manufacturing materials and processes, or the unique geographic climate and local culture? For all the reasons above, this study aimed to analyse the genetic diversity of *Saccharomyces cerevisiae* species used in bread from different areas of the world.

### Methods

*Saccharomyces cerevisiae* were obtained from NITE Biological Resource Centre (NBRC) and from bread samples collected from different areas of the world. These samples were observed with an optical microscope. Microbial DNA was extracted from pieces of bread using DNeasy Blood & Tissue Kit (QIAGEN). Six microsatellite loci were sequenced after PCR. Neighbour-joining trees were built based on the data of six microsatellite alleles.

### Results

Microorganisms including yeast as well as *Bacillus* and *Lactococcus* could be observed microscopically, which mean that a variety of microorganisms are involved in the fermentation process. DNA could be extracted from viable *Saccharomyces cerevisiae* and that in baked bread. By combination of intermediate alleles, the genotyping of *Saccharomyces cerevisiae* from NBRC and bread samples showed them to be different between regions and countries. Dry commercial baker's yeast (*Saccharomyces cerevisiae*) and yeast used in bread were the closest in the neighbour-joining tree, showing the validity of the results. In addition, breads using the same yeast were not affected by heating method (oven, stone oven), and these yeast formed the same clusters. Further genomics studies using larger bread population samples, could give us new clues on the relation between people and fermented foods through history.



## Developing home economics education through a socio-cultural perspective: Case study in Estonia

poster board ID 373-2-19

Country	Estonia
Lead author	<b>Jaana Tamm</b> (University of Helsinki)

The situation of home economics in Estonia is rather complicated; those lessons are taught in conjunction with handicraft. Because of tradition, cooking lessons are used as alternative activities for manual handicraft lessons. In a situation where new national curriculum is approved, analysing what teaching methods and learning tasks will help to achieve learning outcomes written in the curriculum will help pupils to gain a deeper understanding of the subject. The main aims of home economics should be building up pupils' knowledge and skills so they become able to share responsibility, act sustainably, and take care of varied home activities. Such knowledge and skills need to be integrated in order to establish effective practice for creative action and independent management. Organising only practical home economics lessons without theoretical bases will not prepare pupils to become socially responsible individuals. The methodological standpoint in this research is action research. Action research phases are followed in collaboration with practitioner and students.

We have designed several innovations which will be tested in home economics lessons in the spring of 2012. Developments in this research are planned to give students a holistic understanding of the subject; therefore, topics need to be handled as an integral, uninterrupted unit. Connected lessons help students to construct knowledge and see integration between topics handled in classes and to integrate their knowledge and skills. In addition, the subject matter as well as methods used in lessons should be vital and contemporary. Students need to be made aware of how school knowledge can be used in daily situations. To increase transfer of learning into everyday life, it is necessary to include students' experiences in learning situations and to use methods that support independent or collaborative knowledge construction. Vygotsky's socio-cultural perspective is a key factor in this developmental work. Collaboration in Estonian home economics lessons has been used for cooking classes, but theoretical aspects are handled, if at all, in lecture form. To increase students' engagement and help better knowledge building, learning is best done as a collaborative process. This presentation introduces the main findings and gives the overview of school intervention in Estonian home economics lessons. Such a background can be used as an example for practitioners from other countries.

## Conditions in home care for the elderly and evaluation of environment: Study of odours in home care environments Part 1

poster board ID 396-2-20

Country	Japan
Lead author	<b>Junko Murata</b> (Wakayama University)
Co-authors	Tomoyo Itakura (Dokkyo Medical University School of Nursing) Shiho Mori (Mie University) Megumi Mitsuda (Daido University)

As post war baby-boomers reach old age, Japan is becoming a full-blown aged society. Under these circumstances, the country's policy on welfare for the elderly has shifted toward the support of home- and community-based alternatives to nursing-home placement. Improving the home care environment is very important for family caregivers in order to lighten their burden. The condition of a home environment affects the quality of living of its residents. This study focused on the odours of aged care environments, because odours are one of the most important issues in long-term care environments. However, in home care for elderly people, there is not enough data on evaluations of long-term care environments. The aim of this report is to clarify the actual condition of home care and how caregivers evaluate the care environment. We conducted a questionnaire survey of caregivers living together with elderly who used long-term care insurance from December 2010 to January 2011. The 343 participants were caregivers. The questionnaire was constructed with basic attributes of the elderly and caregiver, care level and activities of daily living (ADL) of the elderly, care burden, odorous environments of the house, condition of the house, subjective evaluations of odours in the home care environment, and so on. The results were as follows:

1. Nearly 40% of the caregivers are daughters of the elderly, and 30% are daughters-in-law. More than 70% of the elderly are over 80 years old, and 28% are certified as care level 4 or 5, which means they require a lot of care or support in daily life. Fifty-two per cent of the caregivers take care of the elderly without any support from other family members.
2. Regardless of the care-level, home care of the elderly is a burden to the caregiver. Over 60% of the caregivers think that it is difficult to contact their friends, maintain their social life, and invite people to the home.
3. In spite of various services being available, most elderly people use only day services.
4. Excreta have the strongest and most unpleasant odour of all odours emitted in the home. A higher level of odour discomfort comes from garbage, drainage, mould and body odour of the elderly (including hair, sweat, bad breath) in the given order. The odour intensity of excreta is related to the levels of certified care needed.

## Practice and evaluation of the Intergenerational Program: Introduction of measuring participants' stress levels as an objective index

poster board ID 426-2-21

Country	Japan
Lead author	<b>Kazuki Naka</b> (Hyogo University of Teacher Education)
Co-author	Sadako Tokumaru (Joetsu University of Education)

Intergenerational exchange programs have been developed in recent years in Japan. However, most of the activities stay still be based on the practical matters. Their point of view is focused mainly on the practice of the activity itself. That is the reason why many of the activities were held as once-only events. Even when they evaluated the activity, they used subjective scales such as questionnaires, interviewing, and observing. In the evaluation of intergenerational exchange programs, objective evaluation is required, not just subjective evaluation. In this report, we observed the participants and tested stress levels of the elderly before and after the activity using a biomarker (alpha-amylase). We also tested their subjective mood using Face Picture Scale. Then, we classified each stressor after the activities. Program participants were children (n=33, mean age 8.6 years) and elderly (n=22, mean age 83.0 years). The program mainly included play activities between children and the elderly, using some items that were used in the past. The results showed that, the stress levels of the elderly participants of the IP group were significantly going up ( $p < .05$ ). Their subjective mood was also going up ( $p < .05$ ). This result may show that their stress after the program was eustress (i.e. stress that is perceived as a positive challenge).

## A study on factors affecting ego-identities of multicultural adolescents

poster board ID 434-2-22

Country	Korea
Lead author	<b>Yookyung Shin</b> (Healthy Family Support Centre)
Co-authors	Jinkyung Chang (Sookmyung Women's University) Jongmi Jun (Healthy Family Support Centre)

### Aim

This study researches influencing factors on ego-identities of adolescents from multicultural families in order to check the roles and functions of the supporting systems so that we can offer political implications out of them.

### Method

According to the Ministry of Public Administration and Security (2001), Geumcheon-gu has 2221 (4.5%) marriage immigrant women and 673 (3.7%) children are presumed. There are 254 (37.7%) adolescents among these 673 children, and 102 (40.2%) of these adolescents were surveyed. Data was collected for three months from October to December 2010. Regression analysis was made to verify the comparative influence on ego-identity by such factors as parent-support (emotional, informative and economic supports), social-support (teachers and peers support) and school adaption (teacher-student relations, comradeship, school lessons, school regulations) and moderating effects. We have proceeded with the data through SPSS 18.0 for correlation analysis and linear regression analysis.

### Results

The results of this study are summarised as follows: First, all factors are mutually related to a significant level. That means parent-support, social-support, school adaption, and ego-identity are all positively related. Second, parental support ( $t=2.058^*$ ), social support ( $t=3.274^{**}$ ), and school adaption ( $t=2.431^*$ ) have positive influence on ego-identity. The F value in the regression model shows a significant number of 16.305 at  $p=.000$ , while the regression formula casts explanatory 33.3% out of  $R^2=.333$ . Third, to assess the comparative influences of the factors, the parental support ( $\beta=.307$ ) is the most influential, which is followed by school adaptation ( $\beta=.219$ ), and social support ( $\beta=.231$ ). Fourth, the regression analysis was performed in order to search the moderating effects analysis of the parental support that influences on school adaptation and ego-identity. The results show an increasing trend of  $R^2=.154$  in Model 1,  $R^2=.304$  in Model 2, and  $R^2=.428$  in Model 3.  $F=21.328$  in Model 3 is statistically significant, which means parental support had the moderating effects in between school adaptation and ego-identity.

### Conclusion

In summary, it makes the building of a healthy Korean society possible to help children from multicultural families establish the ego-identity as key figures in a future Korean society. It is necessary to establish relevant policies and environments based on the results of this study so that integral support can be performed through the efficient networking among support systems for the children of multicultural families.

**Antioxidant activity and palatability of roasted adzuki bean flour**

poster board ID 443-2-23

Country	Japan
Lead author	<b>Fumiko Konishi</b> (Kagawa Nuturition University)
Co-authors	Tomoko Murakami (Hokkaido University of Education) Midori Kasai (Ochanomizu University) Sonoko Ayabe (Takasaki University of Health and Welfare)

**Aim**

Adzuki beans have been used as a food as well as a diuretic and anti-inflammatory medicine in China and Japan. Adzuki bean extract is rich in polyphenol and shows a high antioxidant activity. An increasing number of reports indicate that adzuki polyphenol is effective in suppression of hyperglycemia, high blood pressure and hyperlipidemia. Adzuki beans are potentially a useful food for prevention of lifestyle-related diseases. However, the consumption of adzuki beans is gradually declining partly because it takes a long time to cook them. Therefore, we developed a quick way of cooking adzuki beans by simply roasting and grinding. The objective of this study was to investigate the antioxidant activity of roasted adzuki bean flour as compared to traditional boiled Adzuki beans, and to evaluate the palatability of roasted adzuki bean flour.

**Method**

Roasted adzuki bean flour was prepared by roasting adzuki beans at 160°C for 5 min and followed by grinding. Boiled adzuki beans were prepared by boiling them at 90°C for 2 hr. Total polyphenol content was determined by the Folin-Ciocalteu method and antioxidant activity was determined by the DPPH assay and ORAC assay. A questionnaire was conducted to evaluate the palatability of roasted adzuki bean flour at home economics class consisted of 62 sixth grade pupils at a local elementary school.

**Results and discussion**

Total polyphenol content was significantly decreased after boiling them. Antioxidant activity of boiled adzuki beans was significantly increased as compared to the original adzuki beans when determined by the ORAC assay while it was unchanged by the DPPH assay. We have developed a quick way of cooking adzuki beans by roasting for only 5 mins at 160°C and followed by 3 mins of grinding. Antioxidant activity in the roasted adzuki bean flour prepared by our short-time cooking method was very high. More than 90% of the original antioxidant activity was retained in adzuki bean flour which was determined by both the DPPH assay and the ORAC assay. More than 90% of total polyphenol content of the original adzuki beans was also retained in the roasted adzuki bean flour. Sixty-two pupils made roasted adzuki bean flour and ate it with rice cake in the home economics class. Seventy-nine per cent of the pupils liked roasted adzuki bean flour and 88.5% showed their willingness to cook it in their home again. These results indicate that roasted adzuki bean flour can be prepared quickly without losing its antioxidant activity and the sweet rice cake cooked from this flour was regarded to be a favourable food among pupils.

**Survey on odours in house living-dining rooms with kitchens**

poster board ID 454-2-24

Country	Japan
Lead author	<b>Toshimi Tanamura</b> (Daido University)
Co-authors	Hiroko Kubo (Nara Women’s University) Tomoyo Itakura (Dokkyo Medical University) Norio Isoda (Nara Women’s University) Megumi Mitsuda (Daido University)

**Aim**

We measured the odours in the LDK (Living-Dining-Kitchen area) of the house, which had not been measured until now, and we clarified the level of odour in the living environment. The purposes of this study are to confirm the lowest level of odour in the living-dining rooms with kitchen (LDKs) and to examine the difference in odour evaluations between residents and olfactory panels.

**Methods**

Odour samples for olfactory measurements were collected in LDKs of 21 houses by residents. We measured odours twice in LDKs of 21 houses. We measured the concentration of odour samples by the triangle odour bag method. In addition, the intensity and hedonics of odour samples were evaluated by six olfactory panels and residents. The odour intensity and odour hedonics were evaluated by using an evaluation scale.

**Results**

The odour concentration was 10–320 with an average of 63. The measured values were higher than almost ten of the Architectural Institute of Japan’s environmental standards for control and maintenance of indoor odours. On the 6-level odour intensity scale, the average perceived by the panels was 2.6 more than the recognition threshold. On the 9-step odour hedonics, the average of panel was -0.73. On the 6-step odour intensity scale, the average of residents was 2.7, almost the same as the evaluation of the panels. On the 9-step odour hedonics, the average of residents was -0.73, which was the same as the evaluation of the panels, and samples of LDKs were evaluated as unpleasant. As for the evaluation of residents, they scored the odour intensity of their LDKs at 0 or no odours, while the odour evaluation of odour samples collected from their LDKs scored an odour intensity of 2.6 on average. Almost every resident evaluated their LDK as odourless.

**Conclusion**

We think that the reasons for this are that residents are accustomed to the odours in their homes and their preconception is that their house does not smell. Residents evaluated the collected odour samples from the LDKs almost the same as the panels did. It is feasible that residents clearly detect odours and feel the odours in their LDKs are unpleasant when not acclimated such as when returning home from somewhere. It was thought that management for the odour of the house living-dining rooms with kitchens was necessary.

## Japan–US comparison of awards system for home economics education

poster board ID 475-2-25

Country	Japan
Lead author	<b>Keiko Masuda</b> (Fuji Tokoha University)
Co-authors	Mayuko Suzuki (Osaka Kyoiku University) Toshiko Yoshimoto (Mie University) Tamami Azuma (Sugiyama Jogakuen University) Shigemi Kakino (National Institute of Consumer Education) Hiroshi Koderu (Kinjo Gakuin University) Hiromi Tazaki (Shizuoka Welfare University) Naomi Oda (Sugiyama Jogakuen University)

### Aim

With social issues concerning families and family life drawing attention worldwide, how academia and researchers can work to enhance home economics education is a significant issue. This study aimed to examine a support system for developing a home economics education program by making a comparative review and analysing the characteristics and effects of awards systems as a means of enhancing teacher performance and the educational program in home economics in Japan and the US.

### Methods

Interviews were conducted with officials and relevant parties involved with the 'Teacher of the Year Award' sponsored by American Association of Family and Consumer Sciences (AAFCS) in the US and with the Japan Association of Home Economics Education, the Japan Teachers Union, the Research Group of National Junior High School Technology and Home Economics Education, and the Ministry of Education, Culture, Sports, Science and Technology Distinguished Teacher Awards in Japan. A database analysis was carried out of the past records of teacher awards made in Japan and the US.

### Results and discussion

The 'Teacher of the Year Award' in the US is the award system sponsored by the academic society of the AAFCS. The award was established in 1974 and has undergone several amendments during its development. This national award system has clearly specified evaluation criteria and contributes to raising the morale of teachers. In Japan, award systems are operated by the Ministry of Education, Culture, Sports, Science and Technology and the education board, but these are not specialised for home economics education and honouring the achievements of teachers is rare. The objective evaluation criteria are also not publicised and the need for an established system is suggested. There is the potential to enhance and develop home economics education to reflect the diversification of family and family life by establishing an awards system in which academic societies and researchers participate.

## Tooth status of Japanese community-dwelling elderly and effect of cooking method improvement on nutritional and food intakes

poster board ID 476-2-26

Country	Japan
Lead author	<b>Tomoko Yamauchi</b> (Nagoya Women's University)
Co-authors	Michie Moriyama (Aichi Gakusen University) Atsumi Koide (Nagoya Women's University) Atsuko Yamamoto (Aichi Gakusen College)

### Aim

The quality of the diet is considered to be an independent predictor of the healthy-life expectancy and an important factor of promoting health and the quality of life. It has been reported that an age-associated decrease in masticatory force worsens nutritional intake in the elderly. In this study, we investigated the tooth status of community-dwelling elderly in Japan and studied the effect of cooking method improvement according to the tooth status on nutritional and food intakes.

### Method

Subjects were 29 elderly persons dwelling in their community independently (average age: 75.9 ± 7.3). Physical characteristics were measured and the masticatory force was assessed using an occlusal force-meter and colour-changing chewing gum. A survey and an interview were performed regarding the tooth condition, level of difficulty in chewing, cooking method improvement. Nutritional and food intakes were investigated by 3-day dietary recording. Subjects were assigned to two groups: 'difficult-chewing with cooking improvement group' (DC, n=14), and 'normal-chewing without cooking improvement group' (NC, n=15). Each measurement item was compared using the unpaired t test. The significance level was set at 5%.

### Results

No significant differences were observed in the age, height, weight, or BMI between the two groups. The number of natural teeth was significantly lower and the number of artificial teeth was significantly higher in DC than in NC. No significant differences were observed between the two groups in the number of teeth used including artificial teeth. The masticatory force was significantly lower in DC than in NC with an occlusal force-meter (right side) and in colour-changing chewing gum method (L\* a\* b\* values). No significant differences were observed concerning nutrient or food intakes.

### Conclusion

These results revealed that the level of difficulty in chewing depends not on the number of teeth used including artificial teeth, but on the number of natural teeth and masticatory force. They also suggested that improvement of cooking methods according to the tooth status supplements nutritional and food intakes in DC. The future challenge lies in instructing community-dwelling elderly in cooking preparation for better nutrition.

## Conditions and problems of family counselling at Japanese counselling organisations: The need for family life education in Japan

poster board ID 484-2-27

Country	Japan
Lead author	<b>Haruko Nagata</b> (Otsuma Women's University)
Co-authors	Suzuki Mayuko (Osaka Kyouiku University) Kimura Noriko (University of Tsukuba)

### Aim

In Japan, a lot of family issues such as child abuse and domestic violence have been becoming more complicated and diversified. The Division of Home Economics Education the Japan Society of Home Economics is aiming to construct Family Life Education as the lifelong learning based on home economics for solving various family issues. In this study, we investigated the family counselling conditions and problems common to Japanese counselling organisations, local government consultation desks, Child Guidance Centres and university counselling offices across the country. We determined what sorts of the needs there were for Family Life Education as based on the results.

### Method

The data was collected by mail from January to March in 2011 using questionnaires sent to 1989 consultation desks. There were 902 valid responses and the recovery rate was a 50.4%. We asked about how family counselling services are provided, how family issues are understood, what support is needed to solve family problems, and what the needs are for family support training programs.

### Results

Most consultation organisations recognised that family situations were not very good (71%). Family life consultation was seen as complicated and diverse. Nevertheless, because counselling systems and counselling desks were arranged vertically according to counsellors' fields of specialty, they could not always corresponding to the multiplex problems of clients. The necessary supports for solving family problems were 'education about family relations, human development, gender and parenting' (66%), 'living support' (64%) and 'communication skills education' (56%). Given as the main needs for training programs were 'family communications' (65%), 'the child and family during early childhood' (64%), 'the child and family during school age and adolescence' (64%), 'the role of the family life educator' (62%) and 'parenting' (56%).

### Conclusion

As mentioned above, in order to support family life that is complicated with various problems, there need to be the professionals capable of giving individuals and family advice from multifaceted viewpoints and coordinating support comprehensively. It is necessary to contain the training curriculum of a family life educator to basic knowledge about the important issues faced by individuals and families. We will develop a family life educators training curriculum and will compile further empirical studies in future. We will also promote our study for the qualification of family life educators in Japan.

## Quality of training: Teaching abilities of home economics teachers and the effect of informal training

poster board ID 496-2-28

Country	Japan
Lead author	<b>Akiko Kaneyasu</b>

Recently, improvement in the ability of teachers has been a problem in Japan. This research is evidence of a state of affairs that home economics teachers participate in training with a range of backgrounds and experience. The purpose of this research is to investigate the influence of both formal training and informal training on the teaching ability of home economics student teachers. The method of research was literature research, case studies regarding the thinking of sewing and textiles teachers in pre-war days and comparisons with present-day home economics teachers. A questionnaire survey about teaching ability was distributed to home economics teachers. Formal training related to the factors that increased action and a volition/motivation score. These scores were higher where there was systematic in-school training, as well as attendance of workshops in the area. This topic clarified the relationships between teachers' abilities and their informal training in club activities and with other organisations.

### Examination of the appropriate preparation of thickening agents

poster board ID 497-2-29

Country	Japan
Lead author	<b>Hajime Iwamori</b> (Niigata University of Health and Welfare)
Co-authors	Takako Yamazaki (Niigata University of Health and Welfare) Naoko Ito (Niigata University of Health and Welfare)

Commercial thickeners are used to thicken thin liquids like water to reduce the risk of aspiration and dehydration of dysphagic patients. Despite there being an estimated amount of required thickening agent described on the packaging, how to use the thickening agent is dependent on the individual. Therefore, there are not appropriate instructions concerning the degree of thickening and it is subsequently easy to form lumps in the liquid. We studied the easiest and most appropriate preparation of commercial thickening agents. Specifically, we examined the content proportions of those agents, mixing time, mixing speed, the way of mixing them with the liquid, and spoon type used to preparation. We used Toromi-up-perfect (Nisshin Inc, Tokyo) and Neo-hitromeal (Food Care Inc, Kanagawa) as test thickening agents. The adjusted thickening agents were left for 30 minutes at 20 degrees, and measured by creep-meter (Yamaden Inc, Tokyo). A cylinder-shaped plunger with a diameter of 8 mm was used for the measurement. Samples were compressed twice at a 10.0 mm/s speed with a 5.0 mm clearance. From these experiments, we found that three stirs per second and stirring for one minute led to a product that was well mixed and free from lumps. Adding the thickening agent into the liquid quickly, it could be mixed more evenly than gradual adding. Based on these results, we considered the notations easy to understand. New notation is as follows: 1. Mix about three times per second; 2. Add a spoon of thickening agent all at once; 3. Before the thickening agent sinks, stir for about a minute at the same speed as step 1. In accordance with this notation, the 22 students have adjusted to the thickening method and compared it with the conventional one. The thickened condition of the product had less variation among individuals using the new preparation method compared to the conventional one.

### Koreans' acceptance of diverse family structures and lifestyles: An investigation of associated factors

poster board ID 501-2-30

Country	Korea
Lead author	<b>Jaerim Lee</b> (Yeungnam University): congress presentation by co-author <b>Myung Sook Song</b>
Co-authors	Youn Shil Choi (Sangmyung University) Eunsuk Cho (Myungji College) Myung Sook Song (Songwon University)

#### Aim

We aimed to identify the factors associated with the level of acceptance of diverse family structures and lifestyles among South Koreans. In line with growing family diversity in the global context, family structures and lifestyles in Korea have diversified despite the long-held ideology of the 'normal' family. Demographic statistics show that the 'normal' family (i.e. families with two Korean-born parents and their biological children living in the same household) is no longer the only common type of Korean family.

#### Method

The data came from the Second National Survey of Korean Families, which collected a nationally representative sample of 4754 Koreans aged 15 years or older in 2010. The acceptance of diverse family structures and lifestyles was measured using 11 items about family structures and lifestyles (i.e. singlehood, cohabitation, premarital sexual behavior, international marriage, childlessness, adoption, extramarital childbirth, divorce, remarriage, single parenthood, and multi-local families) on a 5-point Likert scale. Values were added, with higher scores meaning greater acceptance of diverse family structures and lifestyles. Independent variables were the respondent's gender, age, education level, household income, the size of residential area, being a parent, employment status, marital status, household structure, and attitudes towards being a parent, parenting, traditional gender roles, filial responsibilities, and parental assistance for adult children.

#### Results

Despite the recent changes in Korean families, the acceptance level of diverse family structures and lifestyles was somewhat low (M = 29.44). A multiple regression analysis revealed that younger age, higher education level, living in a populous area, being a parent, and being employed were significantly related to greater acceptance of diverse family structures and lifestyles. Being single or widowed was negatively associated with the acceptance level of diverse family structures and lifestyles, compared to being married. The respondent's household structure was also significant, showing that living in a single-parent or one-person household was significantly related to greater acceptance of diverse family structures and lifestyles. Negative attitudes toward being a parent or parenting, non-traditional attitudes toward gender roles, and lower support of parental assistance for adult children were significantly associated with greater acceptance of diverse family structures and lifestyles.

#### Conclusion

This study identified the factors associated with the acceptance of diverse family structures and lifestyles using a representative sample of Koreans. The results suggest that changes in the acceptance of diverse family structures and lifestyles depend on individual characteristics, one's own family situation, and attitudes towards family roles and responsibilities.

## Minerals in consumer products: Health, safety, and sustainability – threats to wellbeing

poster board ID 525-2-31

Country	United States
Lead author	<b>Carole Makela</b> (Colorado State University)

Globalisation has led to increased exporting and importing of raw materials including minerals, consumer products with mineral ingredients or components, and used products for the recovery of minerals. To what extent is home economics aware of the consequences that the trade of and demand for minerals have to the wellbeing of individuals, families and societies? Child labour, air and water pollution, workers' health and safety and consumer wellbeing are integral to a broad range of products – paint, electronics, medical devices and drugs, fabrics, foods, cosmetics, batteries, building materials etc – from manufacturer to disposal and recovery. An analysis of consumer product recalls in the United States during the last decade indicates the products originated from more than 60 countries and nearly one-half are products endangering children. Many involve minerals as lead or cadmium, which are toxic and cause cognitive and physical limitations. Despite bans on the use of lead in paints and petrol, there are residues from past usage that remain a concern as well as the continued use in new products. An area in Australia is one example where policy requires blood tests for young children to assess lead levels on a periodic basis. Meanwhile debate continues nationally and internationally as to safe levels. Product life cycles from manufacture to use to disposal and recovery and global dependencies of countries involved will be presented for lead, a selected rare earth (used in electronic products), and gold (unsafe mining and processing and increased value contributing to theft and corruption). These are examples of minerals used in everyday products that should initiate questions about minerals/metals for consumer decision making. Under what conditions are the minerals produced/recovered, at what cost to human health and safety? What information do consumers need to effectively select, use, and dispose of products? What policies for production, consumer safety, economic security, and disclosure (labelling and usage) are relevant to assure sustainable development and sustainability of mineral supplies? The supply and demand for minerals as components of consumer products have increased the needs for consumer awareness, knowledge, and choices to assure wellbeing and sustainability. Consumers need to be proactive now and home economics needs to be involved!

## Korean adolescents: Career maturity as configurations of psychological independence and career decision-making self-efficacy

poster board ID 526-2-32

Country	Korea
Lead author	<b>Jae-Hee Lee</b> (Yeungnam University)
Co-author	Ji-Min Lee (Yeungnam University)

The purposes of this study were to explore clusters of Korean adolescents based on their psychological independence (functional independence and emotional independence) and career decision-making self-efficacy (self-estimation, career goal, occupational knowledge and problem solving) and to examine differences in their career maturity (autonomy, objective, decisiveness and certainty) according to the clusters. The subjects were 447 students of second grade from middle school and high school in South Korea. Questionnaires included the measures of psychological independence, career decision-making self-efficacy, and career maturity. The two-step cluster analysis and One-Way ANOVA were conducted using SPSS 19.0 program. The results of this study showed firstly that the cluster analysis identified four groups based on psychological independence and career decision-making self-efficacy: Cluster 1 (high in both psychological independence and career decision-making self-efficacy); Cluster 2 (low in psychological independence, but high in career decision-making self-efficacy); Cluster 3 (high in psychological independence, but low in career decision-making self-efficacy); Cluster 4 (low in both psychological independence and career decision-making self-efficacy). Secondly, One-Way ANOVA indicated that cluster 1 had a higher score than any other groups on subfactors of career maturity. In contrast, cluster 4 had the lowest score on subfactors of career maturity. Thirdly, the comparison of cluster 2 and cluster 3 showed that career decision-making self-efficacy was more effective than psychological independence on career maturity. The results of this study imply that psychological independence and career decision-making self-efficacy are important factors in Korean adolescents' career maturity. Also, the finding indicates that various strategies and educational programs are required to improve adolescents' career maturity. This research is valuable in that the findings provide fundamental information on Korean adolescent's career development and success.

## Effective use of reading picture books with actual experiences as resources in the childcare field

poster board ID 554-2-33

Country	Japan
Lead author	<b>Sumiko Kai</b> (Fukuoka University of Education)
Co-authors	Akiko Kaneyasu (Cyuo Junior High School, Fukuoka) Sigeko Horigami (Orio High School, Fukuoka)

### Aim

In Japan in the present day there is an increasing number of nuclear families and child rearing is in confusion. About fifty children died by 'abuse' in this year. Many young mothers with babies are anxious in bringing up their children but have little knowledge and few relatives. The purpose of our research is to develop effective methods and materials for the field of child care in home economics education. Students at high school and junior high school are able to understand and learn how to care for and nurture children in their future. The reading of picture books is a traditional way for mothers to interact with their children; picture books are traditional materials of home economics education too. In 2008 our teaching curriculum was revised by the Ministry of Education to emphasise 'study through actual experiences' in all subjects. So we have investigated teaching materials relating especially to home economics that include the study of actual experiences. In particular, we looked at reading picture books as materials for the topic of 'child care'. Our methods and materials aim to enable students to improve in their knowledge and relationships.

### Method

1. Collect picture books and analyse them; 2. Select 4 or 5 books to be used as teaching materials; 3. Make some teaching materials based on the characters and actions in the books; 4. Experiment with the reading of picture books by high school students to kindergarten students; 5. Experiment with the reading of picture books by junior high school students to kindergarten students; 6. Review and correct the methods and teaching materials.

### Results

1. The students of high school and junior high gained expertise in knowledge and relationships linked to child care; 2. Reading picture books to children was an effective and actual experience; 3. The teaching specialty of home economics can include the study of actual experiences through the reading of picture books as a teaching material for the field of child care.

## Strategies to improve the communication between consumers and food experts in the area of flavour enhancers

poster board ID 556-2-34

Country	Germany
Lead author	<b>Barbara Freytag-Leyer</b> (Fulda University of Applied Sciences)
Co-authors	Friedrich-Karl Lucke (Fulda University of Applied Sciences) Stefanie Ochsner (Fulda university of Applied Sciences)

Food experts' and consumers' risk perceptions of flavour enhancers differ considerably. While experts consider health risks scientifically negligible for healthy persons with normal food habits, consumers are afraid of negative consequences. To improve this situation a better communication between consumers and food experts should be enabled. Therefore, the research question is which strategies to improve this communication with regard to flavour enhancers are useful. To answer this question, semi-structured telephone interviews with nine German food experts from the food industry, consumer organisations and research institutes (identified with a stakeholder analysis) were conducted between May and July 2011. The data was analysed using a qualitative content analysis following the approach of Meuser and Nagel. The results show that flavour enhancers have a negative image from the point of view of the food experts. Consumers are unsatisfied with the actual situation on the one hand but do not have confidence in food experts on the other hand. Strategies to ensure a better communication should especially focus on transparency of information with regard to flavour enhancers. To ensure this, the following strategies are expected to be successful:

1. Consumers have to be provided with generally intelligible basic rules which can be used in their daily life;
2. Companies have to look through the eyes of customers to understand their needs. Therefore, food experts have to take an active role seeking the contact with consumers;
3. Consumer organisations should act as additional intermediary between consumers and food experts from companies. To ensure this, a higher budget and more staff are necessary for these intermediaries;
4. A central, trustworthy contact point is necessary in which the entire scientific knowledge of general interest is available in a processed form;
5. A new label which is easy to understand should be invented to inform customers about flavour enhancers on each product. This would allow consumers to opt consciously for food products with or without flavour enhancers and/or yeast extract.

Overall, there should be a close cooperation between all stakeholders, allowing for an alignment of the single strategies. This is necessary to improve the negative image of flavour enhancers which is hard to overcome. If these strategies are applied, consumers can be informed in a better way and be in accordance with the experts' perception of flavour enhancers' risks.



## Effects of cooking activities on elderly people with senile dementia and their staff in a care centre in Japan

poster board ID 562-2-35

Country	Japan
Lead author	<b>Natsuko Yukawa</b> (Kyoto University of Education)
Co-authors	Kaori Nose (Miyama Kobushino-Sato) Akemi Kobayashi (Miyama Kobushino-Sato) Sachie Sano (Miyama Kobushino-Sato) Kyoko Shiga (Miyama Kobushino-Sato) Chiho Myojin (Kinki University)

### Aim

Cooking activities are expected to be effective for elderly people with senile dementia e.g. to support independence or to reduce behavioural psychological symptoms of dementia. However, it has not been fully proven or established that methodology and effective evaluation methods for cooking activities work as a therapy. In this study I will introduce these activities to patients with senile dementia in a Japanese day care centre and reveal their effects on them and their staff.

### Methods

We conducted cooking activities with one to four people with senile dementia, and one staff member before lunch time at this facility. These were conducted three times a week. We mainly studied changes in three people who joined these activities all year around. Each patient was evaluated for their conditions by the Hasegawa Dementia Scale revised version and GBS scale. Each activity was evaluated for its effect on both the group and the individual participant. Effects on staff were researched by a questionnaire and an interview about their attitude towards patients.

### Results and discussion

Cooking activities improve the expression on patients' faces. They had more conversation with each other and these activities also improved their appetite. One participant was able to cook at her own house, so it brought a positive change in her daily life. After six months, GBS scale items of three patients improved, such as 'movement ability', 'intellectual ability' and 'emotional aspects' etc. These results decreased during the winter season. Although their levels of senile dementia didn't improve during a year, they could find their own role in the cooking activities and it brought a feeling of worth and enjoyment. These aspects had many positive effects for patients. Cooking activities also improved the staff's level of care and attitude towards patients. Staff could discover forgotten abilities that patients used to have, for example using a knife safely. Staff is not only learning about cooking but their care of patients has become more personal.

### Conclusion

The results of the present study indicate that cooking activities are useful for elderly people with senile dementia to improve quality of life and also useful for staff who could improve in all areas of care for the patients. We intend to establish the methodology for cooking activities and want to contribute to improvement of care to people with dementia.

## Protein changes observed in bread baked with bacterial enzyme that is produced by microorganisms in fermented food with wheat flour

poster board ID 572-2-36

Country	Japan
Lead author	<b>Mitsuyo Hori</b> (Gifu City Women's College)
Co-authors	Thoru Suzuki Hiroko Nagano Makoto Shimoyamada

### Aim

Bread products around the world contain various microorganisms other than yeast, and some of them have been shown to be hypoallergenic. In these hypoallergenic bread products, microorganisms belonging to the genus *Bacillus* are often found together with yeast. On the other hand, microorganisms that produce enzymes with high protease activity have been successfully isolated from traditional fermented foods with wheat flour. In the present study, we made bread using yeast and a bacterial enzyme with high protease activity (one of the enzymes produced by the isolated microorganisms), and then investigated the changes that occurred in bread proteins.

### Methods

Ingredients used were a mixture of Japanese wheat flour (1/3) and Canadian wheat flour (2/3), sugar, salt, yeast, water, and the bacterial enzyme. The bread baked without the enzyme was used as a control. Bread was then made by the sponge and dough method (or twice-mixing method). Proteins were extracted from the powdered bread obtained by freeze-drying, and sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) and two-dimensional polyacrylamide gel electrophoresis (2-D PAGE) were performed using the supernatants of the centrifuged extracts. Free amino acids were determined by high-performance liquid chromatography (HPLC).

### Results

The results of SDS-PAGE analysis showed that the bands around 30 kDa and 25 kDa, which are related to wheat allergens, were more diffuse for the enzyme-added bread than for the control bread without the enzyme, suggesting that the enzyme-added bread may have become hypoallergenic. On the other hand, the enzyme-added bread had bands that were not observed in the control bread. In the 2-D PAGE, as well, the spots that appeared in both breads were more diffuse in the pattern of the enzyme-added bread than in that of the control bread. As in the SDS-PAGE analysis, the enzyme-added bread had spots that were not found in the control bread. Further analysis is being conducted on these spots using MS/MS. HPLC results showed that the total amount of free amino acids increased more in the enzyme-added bread compared with the control bread.

### Ecomuseum as a learning milieu: Making a local identity through a museological method

poster board ID 575-2-37

Country	Japan
Lead author	<b>Kazuoki Ohara</b> (Yokohama National University)
Co-author	Kazuoki Ohara (Yokohama National University)

#### Aim

The term 'ecomuseum' refers to human-ecological activities that aim to develop an entire region as a living museum. An ecomuseum embodies three elements: 1. the preservation of various kinds of heritage, including nature, cultural and industrial traditions in a given region; 2. the management and operation of these with the participation of local residents for the sake of their own futures; and 3. the function of the preserved nature and traditions as a museum. Ideally, the three elements of 'heritage', 'participation' and 'museum' should be well balanced and constitute a closely integrated whole. This study is to make it clear how the ecomuseum concept becomes important methodology as a learning system for local peoples to make a local identity as a step towards sustainable community.

#### Method

Case study in Japan: Miura Peninsula Ecomuseum. The local peoples' groups in Miura Peninsula perform various activities. Once these activists realise that they are the partners of the ecomuseum, all become connected in their consciousness, creating the ecomuseum network across the entire region. The ecomuseum project of the whole Miura Peninsula started in 2000 when a study group began to survey the territory. After a short organising negotiation period, in 2005, the liaison council of Ecomuseum Miura Peninsula started its activities aiming at realising the ecomuseum in the peninsula as an attempt to connect local peoples' action groups.

#### Conclusion

In the survey of Miura region, we have found confirmed that the groups have grasped other group activities, communicated with other groups and created acquaintance relationships between fields because people's communication was encouraged by the inauguration of the council and related activities. Also, it has become evident that this leads to the support for the activities of the groups themselves in the current situation. An individual member who attends the meetings or forums of the liaison council can meet other group activities and take in a new point of view to know the region through the council activities. Also, we can regard it as one of Ecomuseum's meanings that people learn how to perceive the region comprehensively from various directions beyond a field or a point of view. Ecomuseum can be the educational tool for reforming these 'theme-oriented communities' into a 'local community'. Ecomuseum activities are never-ending. They are constantly developed, reviewed and altered. And it is the local people who set the directions for them.

### Analysis on causal relationship between green consumption knowledge and green consumption behaviours in Korea

poster board ID 586-2-38

Country	Korea
Lead author	<b>Hyochung Kim</b> (Inje University)
Co-author	Meera Kim (Kyungpook National University)

Recently green growth has become a major topic as a new growth engine in the future in Korea and abroad. Green growth can be achieved with balanced development of green production and green consumption. Accordingly, the purpose of this study was to examine the level of knowledge of green consumption and the level of green consumption behaviours, to determine the factors affecting the level of knowledge and behaviours, and to assess the causal relationship between them. The sample was obtained from college students in Yeungnam, Korea, by a self-administered questionnaire. The questionnaire consisted of closed-end questions regarding environmental consciousness, attendance at environmental education, knowledge about green consumption, and green consumption behaviours. Respondents also were asked to answer the questions related to their socio-demographic profiles such as sex, grade, and monthly allowance. Of 350 questionnaires that were distributed in April 2011, 314 usable responses were received. Frequency distributions, Cronbach's coefficient alpha, Pearson's correlation coefficient analysis, multiple regression analyses, and path analyses were conducted by SPSS Windows V.18.0. According to the results of frequencies, the levels of both green consumption knowledge and green consumption behaviours were not high; the means were 2.81 (range: 1–5), and 2.96 (range: 1–5), respectively. Multiple regression analysis for the level of green consumption knowledge showed attendance at environmental education, and environmental consciousness were statistically significant variables. On the other hand, environmental consciousness, and the level of green consumption knowledge affected the level of green consumption behaviours. The results of the path analysis showed that attendance at environmental education had an indirect positive influence on the level of green consumption behaviours. Environmental consciousness had both a positive direct and a positive indirect effect on the level of green consumption behaviours. In addition, the level of green consumption knowledge directly affected the level of green consumption behaviours. These results imply that green consumption education for college students should be activated to induce green life.

## Analysis of factors affecting various dieting practices among high school students in Korea

poster board ID 588-2-39

Country	Korea
Lead author	<b>Meera Kim</b> (Kyungpook National University)
Co-author	Hyochung Kim (Inje University)

This study investigated the factors affecting various dieting practices among high school students in order to find out dieting behaviour status. The survey was carried out in Gyeongnam region of Korea through a self-administered questionnaire during April, 2010. The questionnaire included the questions regarding height, weight, self-perception about body image, concern about diet, awareness of diet, self-esteem, effect of parents on body type, effect of peers on body type, effect of mass media on body type, diet knowledge, and dieting practices. A total of 237 participants completed the questionnaire. Frequencies, Cronbach's alpha, Pearson's correlation coefficient analysis, and multiple regression analyses were conducted by SPSS Windows v.18.0. When comparing BMI with self-perception about own body shape, many respondents considered themselves as overweight although they belonged to normal BMI. The respondents showed the high level of concern about diet, and had relatively positive attitude toward diet. In addition, percentage of correct answers for diet knowledge was 70.8%. The level of dieting practices, rated from highest to lowest, was fasting therapy, exercise therapy, appliance therapy, food therapy, drug therapy, appliance therapy, oriental medicine therapy, and therapy by diet clinic. According to the results of multiple regression analyses, females took more fasting therapy than males; males took more appliance therapy, food therapy, steam bath therapy, drug therapy, and therapy by diet clinic. On the other hand, diet knowledge was a significant factor for fasting therapy, exercise therapy, food therapy, drug therapy, and therapy by diet clinic; the respondents who had higher level of diet knowledge had less tendency to take these diet practices than those who had lower level. In addition, external factors of body type affected most diet practices; parents, peer groups and mass media had significant influence on diet practices.

## A home economics program at a junior high school related to the characteristics of the town

poster board ID 609-2-40

Country	Japan
Lead author	<b>Toshifumi Sasai</b> (Kyoto Prefectural University)
Co-author	Minae Kamesaki (Saitama University)

This is a trial program of home economics practised at a public junior high school in Saitama, Japan. The aim of this program is to make students find everyday problems in their town from the aspects of design, disaster prevention and environment. After several activities to find problems and solutions for them, students finally made posters which indicated problems of everyday life that they discovered and proposals to solve them. It is necessary to attract students' interests to the area of home life, which is one of the most important tasks in home economics in Japan. This program proves that the use of photographs and sample stories related to their town is effective in attracting students' interest. The aim is to expect students to become conscious of their environment, natural disaster prevention technology and the design of houses and objects. At the end of a four-hour session students made posters to indicate the problems they discovered, and showed the solutions they proposed. Each student drew one worksheet, and each group of two to five students made one poster by gathering individual work sheets. This program was made for only a four-hour session and without any special activity, but students could find the problems of their town and proposals to solve them. In particular, photographs and stories of their own town played an important role to attract students' interest.

### Performance evaluation of ready-to-wear saree blouses

poster board ID 615-2-41

Country	India
Lead author	<b>Shilpa Charankar</b> (Dr BMN College of Home Science)
Co-author	Ela Dedhia (Nirmala Niketan College of Home Science)

#### Aim

Saree is a traditional costume worn by Indian women. The saree itself is an unstitched length of cloth, measuring about 4 to 8 metres. The saree blouse is an important requirement, normally stitched by tailors in cotton or polyester blended fabric. The ready-to-wear (RTW) general apparels have become very common and have been accepted throughout society. The RTW saree blouse is not widely available in a variety of patterns, materials, colours and price ranges. These blouses have the potential to overcome the disadvantage of woven 'tailor-made' saree blouses with a promising future for knitted/woven examples in tune with the times; they are also a boon to working women. Research was carried out on RTW blouses for performance on the basis of wear trials. The objective of the study was the evaluation of the performance of saree blouses constructed on derived standard measurements, made of knitted cotton, containing Lycra, polyester cotton blend containing Lycra (knitted as well as woven) and control cotton woven sample of saree blouses with respect to comfort, fitting, feel, dimensional changes and colourfastness properties.

#### Methods

Four types of blouses were constructed. Blouse 1 (knitted cotton with Lycra), blouse 2 (knitted PC blend Lycra), blouse 3 (woven PC blend Lycra), blouse 4 (cotton cambric). Cotton rubia cambric fabric was purchased as the 'control sample'. The 62 voluntary respondents (initially started with 80 respondents) in the age group of 20–50 and having the bra sizes 32, 34 and 36 were selected for the wear trial (normal usage). On the basis of score, blouses were rated with respect to all parameters. The best blouse was judged separately with respect to each parameter. Behaviour of each fabric in washing cycles was studied. A questionnaire was designed to record the observations of the respondents on quantitative terms. A scale was used for rating.

#### Results and discussion

Based on the statistical analysis of the quantitative response given by the respondents, blouse 3 was rated as number one in overall score since six respondents rated this blouse in the category 'more than 10'. Blouse 2 was rated as 'second'. Blouse 4 was on 'third' rank, and blouse 1 was 'fourth', with respect to the selected performance parameters. Research was confined to city of Mumbai, India, having typically humid weather and range-bound temperatures. Trials may have to be conducted on an all-India basis covering all weather conditions. The respondent base shall be made large to represent all ages and all sectors of women. Such data will be helpful to the textile industry, both fabric manufacturers and apparel manufacturers, in designing a product for mass consumption as well as trend setters with wide choices. This will open up a new sector for both industry as well as consumers.

### Dare to be different: An innovative approach to middle years education

poster board ID 676-2-42

Country	Australia
Lead author	<b>Jane Norton</b> (Eltham College of Education)

Middle School at Eltham College of Education encompasses Years 5 to 8 located at the Research campus alongside Junior Years, beginning with 3-year-old kindergarten, and Senior Years, Year 10 to 12. Year 9 stands alone with students travelling to Eltham College's Melbourne City School, located in the centre of Melbourne. Middle School year level coordinators and home groups have been replaced with Learning Advisors and a Community Program. Each student is allocated a Learning Advisor who remains in that role for the duration of the students' time in Middle Years. Students have been given permission to take charge of their learning with enhanced relationships encouraging greater guidance. Students have truly been elevated to key stakeholder status. Literacy, numeracy, languages other than English (LOTE) and physical education (PE) are taught in year level groups. Positioning in literacy and numeracy groups are determined to support personalised learning with fluidity. Other subject areas including home economics, outdoor education, sciences, geography, history and music are taught through an intensive, six-week module system. Critical to the initiative's success are students' selection and the mix of students from different year levels in each module. Modules are delivered in Victorian Essential Learning Standards (VELS) levels with Year 5 and 6 and Year 7 and 8 students in the classroom together. For example, there are five home economics modules offered in VELS 5 and four in VELS 4, in outdoor education there are four modules offered: marine, mountain, alpine or river. The Community Program enables students across Years 5 to 8 to participate in inquiry learning, which is student led, where they do not simply embark on research but are encouraged to go further with their learning and, as a response, invited to take action. Student wellbeing is supported by every teacher and the Wellbeing Team comprising trained student counsellors and an educational psychologist. The Wellbeing Team work closely with teaching staff to support learning and connect resources into the classroom. This paper explores the experience of redesigning the home economics curriculum from having a year-level focus beginning at Year 5 to being student driven and interconnected across middle years learning through the sequence of themed modules. It will become evident that rethinking the delivery of education by providing the ingredients for personalised learning to release and enhance the talents of every student, underpinned by the principles of Earth Care, People Care, Fair Share, develops capacities for sustainable futures.

**Roles of Alzheimer’s Association of Tunisia in non-medicinal care of Alzheimers patients**

poster board ID 82-3-1

Country	Tunisia
Lead author	<b>Kaouthar Bougriba</b> (Association Alzheimer Tunisie)
Co-authors	Sandra Dachraoui (Association Alzheimer Tunisie) Nadia Slama (Association Alzheimer Tunisie) Ilhem Karoui (Association Alzheimer Tunisie) Leila Alouane (Association Alzheimer Tunisie)

The Alzheimer’s Association of Tunisia (AAT), constituted in March 2006, has four main objectives – to help, to inform and to guide care and families of the patients affected by Alzheimer’s disease (AD). The patients affected by AD need permanent help which eventually exhausts its usefulness. Next to specific medicines, the care of these patients bases itself mainly on the non-medicinal means which aim at protecting the autonomy, the dignity and the cognitive capacities of every patient. THE AAT works in this direction by the institution of clubs of cognitive and driving activities dedicated to the patients, each according to its case and its capacities. The organisation also gives families care, engages a speech therapist and organises every week reports from psychologists. Care through adapted physiotherapy and occupational therapy at home is proposed free of charge to families. Soon the workshops of music therapy and art therapy will be functioning. To occupy the patient by valuing capacities and realisations helps to delay the complications of the disease and allows the families to have a respite. The purpose is to become aware that a specialised and personalised care allows to maintain, as long as possible, the patient in a satisfactory physical and mental state. This presentation has an objective to show the role associated with the non-medicinal coverage of a degenerative disease which affects the whole world without socioeconomic distinction. The prevalence of this disease becomes more marked with the demographic ageing in particular in countries in transition, such as Tunisia, where the life expectancy improved and where a sixth of the population is over 60 years old. It is thus imperative and urgent to strengthen the association’s work to fight against the plague of AD.

**Organoleptic attributes of meat crust, biscuits and rolls produced from sorghum (bicolour)**

poster board ID 128-3-2

Country	Nigeria
Lead author	<b>Priscilla Nnenna Ezema</b> (Home Economics Research Association of Nigeria)
Co-author	Elizabeth Chukwuemeka (Home Economics Research Association of Nigeria)

This work evaluated organoleptic attributes of meat crusts, biscuits and bread rolls made from mixtures of wheat and sorghum composite flours, with wheat flour alone as the control. One hundred judges were carefully selected from staff and students of Vocational Education Department of the University of Nigeria, Nsukka. Sorghum bicolour is extensively cultivated in the middle belt and northern part of Nigeria. The results of the study showed the blends of wheat flour with composite flours as follows. On colour attractiveness: extremely attractive had 45%; very attractive, 30%; and most attractive, 25%. On texture: the result showed 15% for slightly hard; 25%, for slightly soft; and 60%, for neither hard nor soft. The result on flavour likeness showed 35% for extremely liked; 55% for very much liked; and 10% for moderately liked. On general acceptability, the results showed 65% for extremely acceptable and 35% for very much acceptable. However, in the case of the control (wheat flour alone), the results showed 75% for very attractive and 25% for most attractive. On texture, the result showed 75% for slightly hard and 25% for neither hard nor soft. On flavour, the result showed that extremely liked ranked 45% while very much liked ranked 55%. On acceptability, the result showed that extremely acceptable ranked 75% while very much acceptable ranked 25%. The results of sensory evaluation showed that the colour, flavour, texture and general acceptability of the text products were not significantly different from the control at ( $p < 0.05$ ). This implies that sorghum (bicolour), which grows extensively well in most states of Nigeria and is also used mainly for gruel and food, can be processed into composite flour which can be stored for a long period of time, and used for production of snacks for sustainable future.

### School milk program in Germany: Suggestions for improvement by parents and teachers

poster board ID 180-3-3

Country	Germany
Lead author	<b>Cornelie Pfau</b> (Max Rubner-Institut)
Co-author	Eva Goos-Balling (Max Rubner-Institut)

#### Aim

In Germany the participation in the European School Milk Scheme has been declining for years. To gain information on influencing factors of school milk demand, the Federal Ministry of Food, Agriculture and Consumer Protection established the pilot project 'Focus on school milk' in 2007. For potential improvements of the School Milk Program in Germany suggestions of parents and teachers were to be collected and assessed.

#### Method

In 2008 118 primary schools in North Rhine-Westphalia were selected by stratified random sampling. Representative data of school children, their parents, teachers, headmasters and school milk managers were obtained by self-administered questionnaires. Concerning suggestions for improvement parents and teachers answered basically identical questions. The overall response rate was 64% for the parents' questionnaires, and 87% for the teachers' questionnaires. The data analysed refer to 4709 school milk ordering and non-ordering parents (42% of all participating parents) and 419 teachers (61% of all participating teachers) who answered questions referring to improvement.

#### Results

With respect to suggestions concerning improvement of the products for instance 'less sugar' (parents: 64% of ordering and 30% of non-ordering parents, 42% of total; teachers: 85%) and 'less flavouring' (parents: 50% of ordering and 29% of non-ordering parents, 36% of total; teachers: 75%) lead the list. In these cases statistically significant differences exist in dependency of the socio-economic status of the parents; parents with high socio-economic status had highest shares. A 'lower price/school milk for free' is primarily emphasised by non-ordering parents (39%, ordering parents 3%, total 27%). Concerning this statement parents with low socio-economic status had higher shares in comparison to parents with higher socio-economic status (significant differences). Other statements refer to the kind of packaging, to different kinds of ordering and payment.

#### Conclusion

Three main categories of potential improvement of the School Milk Program were identified: concerning the product itself; the handling including the organisational process at school; and the financial aspect. For parents price is by no means always the deciding factor for acceptance of the School Milk Program's products. Parents' and teachers' suggestions for improvement emphasise the nutritional and health aspects of the products as well. With respect to the organisational processes at school like ordering and payment, too, some potential for improvement can be derived from the suggestions made by parents and teachers.

### How male students studying home economics education recognise themselves and the subject: Beyond gender bias towards the subject

poster board ID 193-3-4

Country	Japan
Lead author	<b>Kaoru Horiuchi</b> (Yokohama National University)

Home economics education has been required to be co-educational in Japan since 1989 and both girls and boys have learned it in high schools since 1994. Gender equality in the education system may have been accomplished, but gender bias in students' consciousness towards the subject still exists. Teachers too do not put an end to gender discrimination in schools. Most home economics teachers are female, work part-time, and have a low status in schools. Conversely, opinions of male home economics teachers are easily accepted. They are recruited and expected to change the image of home economics education. The purpose of this study was to clarify the perspectives of male students who were studying home economics education in a teacher training course at a university. They wanted to obtain a teachers' licence for secondary home economics education. The research project started in April 2011. Students answered a questionnaire regarding their experiences in home economics education at schools and shared their opinions on the subject. Subsequently, semi-structured interviews were designed. Eight male students were subjects of the study. One of them was a doctoral student who taught home economics at high schools. Two of them were senior students who had majored in other subjects (science and psychology) and wanted to get home economics teacher's license. Five students were undergraduate students, majoring in home economics. Questionnaire results indicated that they did not necessarily have a good experience of learning home economics during their school days. Most teachers who taught the subject were female, and some male students have a question on why there were no male teachers in the field of home economics. Male students understood the purpose and importance of learning home economics through courses at the university. They understood that the aim of teaching home economics was to build up students' ability to solve problems and to enhance their quality of life. However, male students studying home economics education thought that there was a gap between educational philosophy and its implementation in classes in the school curriculum. Cooking and sewing practices chiefly constituted the content of home economics classes. The challenge of home economics education was to develop the content for bringing gender equality into society. Male students majoring in home economics were expected to become role models for high school students and the key people to develop new lifestyles of work-life balance in a gender-equal society.

## Food education by way of cooking classes

poster board ID 199-3-5

Country	Japan
Lead author	<b>Madoka Hirashima</b> (Mie University)
Co-authors	Miki Hayakawa (Mie University) Mohei Nakai (Mie University) Yuka Isobe (Mie University)

### Aim

In Japan, nutrition education is regarded as very important for good health. It was found that college students with high-level cooking skills tend to have well-balanced diets. As a necessary part of being able to prepare well-balanced meals for oneself, obtaining cooking knowledge and skills can be considered important among many methods in nutrition education. Therefore, we held cooking classes among elementary school students (5th and 6th graders), and studied the effects of these cooking classes in improving their cooking knowledge and skills.

### Methods

Cooking classes were held three times a month from May to July 2009 to prepare well-balanced meals. The menu for breakfast was rice, miso soup, grilled salmon, Japanese-style rolled omelet and boiled spinach with soy sauce. The lunch menu was sandwiches, French fries, and steamed chicken salad. The dinner menu was rice, cabbage soup, stewed hamburger steak and sautéed vegetables. Twenty-nine elementary school students participated in the cooking classes. Surveys were taken before and after the classes to investigate cooking knowledge and skills, and the results were compared statistically by chi-square test. The control was 112 elementary school students (5th graders) who did not participate in the cooking classes. Surveys were taken at the same time.

### Results

Before taking the cooking classes, there were no differences in cooking knowledge and skills between two students groups. However, of a total of 33 cooking knowledge and skills, 19 were significantly acquired by taking the cooking classes, while the control students acquired only 5 cooking knowledge and skill. Moreover, students who participated in the cooking classes significantly acquired 10 cooking knowledge and skills compared with the control. The acquired cooking knowledge and skills were: 'washing rice', 'preparing Japanese broth using dried sardine, dried bonito, or kelp', 'grilling', 'boiling' and four ways of 'cutting', including: 'cube cut', 'edge cut', 'rolling wedges', and 'wedge cut'. The reason for many cooking knowledge and skills being acquired compared with the control is thought to be that many children have continued to cook at home.

### Conclusion

By participating in the cooking classes, the elementary school students improved their cooking knowledge and skills significantly, while the students who did not participate in the cooking classes improved the cooking knowledge and skills only slightly by practising cooking at school or home. Moreover, by participating in the cooking classes, the students learned about a well-balanced menu and purchasing foods that are better for their health.

## The quality evaluation of jam products at a student food processing laboratory by using the multiple regression formula as a substitute for sensory evaluation

poster board ID 204-3-6

Country	Japan
Lead author	<b>Setsuko Matsuoka</b> (Shokeigakuin University)

Jam is a source of year-around nutrition from vitamin C, using fruits of western and northern Europe. Use of jam for gourmet and health reasons has recently risen in Japan and the product is diversifying. In our university, the students make three kinds of jam products at the student food processing laboratory. They take 150 minutes for each jam product. It is difficult to include the sensory evaluation of the jam product within 150 minutes. Some students carry out the sensory evaluation of commercial jam at the level of bachelor's thesis research. My aim was for students to make a kind of jam product and carry out the quality evaluation of the jam product within 150 minutes. So we instead carried out the quality evaluation of jam products at the student food laboratory by using the multiple regression formula as a substitute for sensory evaluation. As a comparison, we had the results of the sensory evaluation of commercial jam from the bachelor's thesis research of students. I investigated how the multiple regression formula from the results could be used to assess the quality of jam. Twelve samples (marmalade jam, apricot jam, and blueberry jam) were chosen. (The total number of the results of the sensory evaluation was 96 (12 samples times 8 women student panelists)). It was clear that the multiple regression formula for the 12 samples were available as a basis, where varying quantities were evaluated for 'scent and taste (criterion variate)', 'sugar content (explanatory variate)', and 'the ratio of sweetness and acidity (explanatory variate)'. But the coefficient of determination is 0.540601. It is small. So, nine samples were chosen. Null hypothesis  $H_0$  is rejected by calculating F-value. The multiple regression formula is available in this instance, where the coefficient of determination increases. The coefficient of determination is 0.658884. It became clear that the quality-evaluation of jam products at the student food processing laboratory by using the multiple regression formula (as a substitute for the sensory evaluation) is possible. The formula is available for control of the component value, too. That is, we can use the formula for choosing the values of 'sugar content' and 'the ratio of sweetness and acidity' of the products, when there is a desirable value of 'scent and taste' for the jam products.

### A study on the active stage of community improvement and sustainability

poster board ID 211-3-7

Country	Japan
Lead author	<b>Taeko Yanai</b> (Nara Women's University)
Co-author	Toru Nakayama (Nara Women's University)

The objective of this study is to understand the change in residents' consciousness of improvement and sustainability through the activity of a neighborhood association in a community in Japan. Most residents of housing developments in the suburbs that were built between the 1960s and 1970s in Japan appear uninterested about each other as they are ageing. These residents share a theme that they have to make a sustainable community through resident initiatives. Especially, securing a reliable public transportation facility that is essential, as lack of it hinders them as a sustainable community. Previously, I have studied the activity of a neighborhood association concerning community buses. The study area was of East Akutami (population approximately 7000). The strategies for improving the rate of passengers on a community bus were useful. After that, many residents in East Akutami attended some events which were held in the community. It was an initial stage of community improvement and sustainability. The characteristics of the initial stage of the activities of the neighbourhood association of East Akutami were the following three points: 1. The directors worked hard for community support to obtain trust of the residents; 2. Collecting the common information of the community bus and the process of distributing a monthly public paper; 3. Setting of the platform for residents to attend easily as volunteers. It is inferred that the approach on the community bus service by the neighborhood association made residents improve their community awareness as the number of volunteers of the safety patrol in the region showed an increase. This time I researched the current state of the community at East Akutami by listening to the directors. There are some places where people gather together to sing favourite songs, and also to maintain the mountains in good condition in East Akutami. They notice that it is important for older people to communicate with the other people outside. And they recognise that retired people work as volunteers and are generally accepted in the community. The directors are always working on new strategies. In this way the change of residents' consciousness is increasing. And it is considered that residents feel a strong attachment and identity for their community. I consider that the community in East Akutami is changing into an active stage following the initial two-year stage.

### Development of knowledge and information for e-family learning: Thai family and sufficiency

poster board ID 242-3-8

Country	Thailand
Lead author	<b>Chittinun Tejagupta</b> (Sukhothai Thammathirat Open University)
Co-authors	Orawin Laoharatchanun (Sukhothai Thammathirat Open University) Chusana Rungpatchim (Sukhothai Thammathirat Open University) Wanapa Poney (Sukhothai Thammathirat Open University)

The objectives of this study were to develop a webpage design to disseminate family life education in the issue of family and sufficiency and to evaluate webpage design and benefits received from the webpage. This study employed both quantitative and qualitative methods. At first, researchers gathered knowledge and information related to successful family lives using sufficiency economy philosophy from printed materials and any kind of media. Then, researchers collected data by home visiting and interviewing 24 families who successfully lived their family lives by following the principles of sufficiency economy philosophy. They were from eight provinces in central region of Thailand including Nonthaburi, Pathum Thani, Ayutthaya, Ang Thong, Singburi, Chai Nat, Lopburi and Saraburi. After finishing webpage layout and design, researchers collated all the contents into eight topics as: His Majesty's sufficiency economy philosophy; concept of family and sufficiency; books and media; articles; family life stories; links; web board. Webpage evaluation samples included 24 family members whose family life stories posted on the webpage, 25 experts and practitioners in the area of family studies and 100 volunteer lay people who got access to this webpage. Research instruments were a recorded form and interview guide constructed by the researchers. Both quantitative and qualitative data analyses were conducted. The majority of reviewers ranked high on appearance, content, design, and satisfaction.



### How primary caregivers of school-aged children with disabilities manage their time: A survey in Hiroshima Prefecture

poster board ID 251-3-9

Country	Japan
Lead author	<b>Rie Endo</b> (Hiroshima University)

In the 1970s, researchers became interested in families of children with disabilities in Japan. However, the family members of children with disabilities have, to date, been treated as a secondary subject in the studies of social welfare and policies and in related research. There is still limited interest in reducing the burden on disabled children's primary caregivers. In the past, research on primary caregivers rarely considered life management issues. The present study analyses their daily lives and how they manage their time. It examines patterns of time management illustrated by primary caregivers of school-aged children with disabilities in Hiroshima prefecture. The survey was conducted between November 2004 and October 2005. Within this term, four days were designated (one weekday and one Saturday of in term and school holidays). During this time, 104 questionnaires were distributed to all primary caregivers, while children under their care were given 105. From the distributed questionnaires, we received 37–45 valid responses for primary caregivers and 38–44 for their children. Almost all existing studies on families of children with disabilities have considered these children's mothers as subjects. The same studies have also assumed that only mothers are primary caregivers and child rearers. In the survey conducted for this study, I asked 'primary caregivers' to participate; I did not narrowly define 'participants' to include only 'mothers.' However, as it turned out the participants were all mothers. During school holidays, school-aged children with disabilities spent time in various places. Their main point of human contact was limited to their primary caregivers because of the bond they shared with their mothers. It was observed that almost all primary caregivers (mothers) slept with their disabled children, while their husbands (fathers) slept in a separate room away from them. In summary, all primary caregivers managed their lives caring for their disabled children for most of the day, except when their children attended school.

### High school students' perspectives of the development of key competencies through home economics education compared to education in other subjects

poster board ID 261-3-10

Country	Japan
Lead author	<b>Yoshikazu Tsuchiya</b> (Tokyo Gakugei University)
Co-author	Kaoru Horiuchi (Yokohama National University)

The concept 'key competencies' has held a dominant position in the educational field since 2003. It was defined as the ability to meet complex demands, by drawing on and mobilising psychosocial resources (including skills and attitudes) in a particular context. Presently, school education necessitates that students acquire abilities to live comfortably. Home economics is a compulsory subject, and male and female students study it to live independently and as responsible Japanese citizens. The purpose of learning home economics is to gain the abilities to lead life efficiently. This is similar to the concept of key competencies. Students learn to design their life by studying home economics. The purpose of this study is to discuss high school students' perspectives on their learning efficiency in home economics. High school students answered a questionnaire on acquirable abilities in school education in July 2010. These abilities, regarded as key competencies, were 'knowledge and skills', 'ability to apply knowledge and skills', 'problem interpreting and solving', 'decision making', 'opinion forming', 'assertion reasoning' and 'critical thinking'. Analysis showed that students gain perspectives on acquirable abilities through lessons in Japanese language, mathematics, science and home economics. The results were as follows. Girls showed higher competencies than boys in seven abilities in home economics. Girls regarded home economics as a subject that would help them acquire key competencies. High school students showed low competencies in five abilities except 'knowledge and skills' and 'ability to apply knowledge and skills' in home economics compared to other subjects. Only 53% of the students answered that they could acquire 'decision making' skills through home economics education, though almost 70% felt that they could acquire these skills through other subjects. High school students have lower consciousness of the acquisition of key competencies in home economics compared with other subjects. 'Knowledge and skills' are the basic abilities students require to lead comfortable lives. These, however, do not cover all life experiences. Students will be able to live and think independently and make independent decisions by using acquirable knowledge and skills in school, particularly through home economics education. The future challenge for home economics educators is to develop meaningful and attractive curricula for students that will help them think independently.

## Antioxidant activity of soluble fractions in Awa-bancha post-heated fermented tea in Japan

poster board ID 276-3-11

Country	Japan
Lead author	<b>Miyuki Kato</b> (Kagawa University)
Co-authors	Masashi Omori (Otsuma Women's University) Hiroko Nagano (Gifu University)

Awa-bancha, a kind of post-heated fermented tea, is produced locally in remote and secluded places in the mountains of Tokushima prefecture in Japan. Until now, the presence of organic acid such as oxalic acids and citric acids has been measured before the fermentation. The present investigation reports antioxidant activity of soluble fraction in Awa-bancha. Antioxidant activity was measured by the discolouration of  $\beta$ -carotene coupled with the oxidation of linoleic acid  $\beta$ -carotene antioxidant activity and the scavenging activity of DPPH (1,1-Diphenyl-2-picrylhydrazyl) radical. Furthermore, the relationship between the antioxidant activities and the content tea components were also investigated, including the pigment composition of tea fractionated by the solvent (MIBK and BuOH), and then carried out by the HPLC. It was shown that the content of polyphenol was bound up with antioxidant activity of the tea infusion and solvent fraction.

## Three-dimensional curved surface shapes varied by body shapes and skirt materials and flare volumes to create patterns and simulations of skirts in order to create them in virtual reality (part 1): Automatic skirt pattern creation utilising imaginary draping

poster board ID 280-3-12

Country	Japan
Lead author	<b>Tomoe Masuda</b> (Mie University)
Co-authors	Kaori Murakami (Hiroshima University) Minami Wada (Mie University)

A large and increasing number of people worldwide now purchase garments via the internet. To offer more efficient, convenient sales and purchase opportunities, manufacturers and retailers need to provide better garment information and better systems to support selection and ordering. If consumers can virtually 'try on' garments before purchase, they will be able to confirm and check a substantial amount of information on compatibility to their body shape, visual feeling of satisfaction, effect on freedom of movement, comfort, practicality, suitability for various occasions and garment care. This in turn will achieve lower levels of waste for both producers and consumers or an 'Eco-clothing lifestyle' in Japanese. In this study, we created 3D simulations of wearing a garment by extracting and then displaying the 3D curved surface shape created by a model wearing a flared skirt, including movement. We created simulations for standard Japanese body shapes of women in their 20s, 40s and 70s (as created by Nanasai Corporation using measurements of HQL in Japan (1992–1996)). Using 3D Body Line Scanner, which allows non contact 3D measurement, we scanned three standard body dummies. In our virtual environment we then draped them with a body tight skirt pattern. With another five adult women (30s and 40's) we used simulations to study movement, such as climbing and descending stairs, seeking 3D data to inform what changes in the amount of flare, hem width and hem circumference would be desirable. On the basis of this movement data, three different body tight skirt patterns were patterned resulting in a body darts reflection skirt, a flared doubled hem circumference skirt and a flared trebled hem circumference skirt. This process was repeated for each age group body shape. From its tight skirt flared amount of auto-configurable, flared skirt pattern creation system constructed from the 3D human body measurement. Finally, we constructed an automated system that will take 3D body measurements and then using a tight skirt design will create a set of dressmaker's patterns according to the customer's specification of the amount of flare.

**The behaviour of preschool children in a children’s home and the best approach to creating a dwelling space from the perspective of their developmental stage**

poster board ID 311-3-13

Country	Japan
Lead author	<b>Noriko Imai</b> (Nara Women’s University)
Co-author	Yui Makino (Nara Women’s University)

In Japanese society, domestic abuse and abandonment of children by parents is increasing, and a growing number of children need social care. Children’s homes are facilities for raising children aged 1 to 18. Since both the human rights and welfare of children must be respected, it is important to find the best approach to dwelling life and living space in institutes which raise children instead of biological parents and cultivate social self-reliance. The significance of this research was found in looking at this issue. This study focuses on methods for planning living environments for children’s welfare institutes, through studying children’s behaviours and analysing the actual conditions of children’s lives as they live with staff in such institutes. The preschool period is a crucial time for the foundation of human development, and care and education in the preschool period is important. For these reasons, this survey examines dwelling spaces for preschool children in children’s homes, and presents a case where the dwelling space for preschool children was originally one room, and then was renovated to divide it into two rooms by age. Previously, in Japanese children’s homes, preschool children from age 1 to 6 have been cared for and educated in the same room space, but it was determined to be desirable, as a space for caring for and educating children, to separate dwelling spaces by ages corresponding to developmental stages. For example, there are large individual differences in eating and going to the toilet, and the time required for living varies greatly depending on the age of the children. By conducting a survey of a case where a dwelling space for preschool children was renovated, it was verified that it is possible to care for and educate preschool children in a fashion compatible with their developmental stages and lifestyle patterns, by using small-scale dwelling spaces with a capacity of 10 children or less and adopting an operations method where the children are cared for and educated by facility staff taking those dwelling spaces as a single unit. For the above reason, in the future in children’s homes in Japan, it will be essential to configure dwelling spaces which take into account the developmental stages of preschool children, in order to nurture the self-reliance of preschool children and provide close individual care. Doing this should further improve the happiness and wellbeing of children in children’s homes.

**Multi-analysis of functions on sea materials by using GC/MS, ORAC, ESR, apoptosis induction and next-generation food functional estimation methods**

poster board ID 325-3-14

Country	Japan
Lead author	<b>Kazuki Harada</b> (National Fisheries University)
Co-authors	Kimiko Kazumura (Hamamatsu Photonics KK) Toshimichi Maeda (National Fisheries University) Taiko Miyasaki (National Fisheries University) Ritsuko Wada (National Fisheries University) Kazuko Shimada (Yamaguchi Prefectural University) Kenji Matsui (Yamaguchi University)

Fish sauces are traditional seasonings in East Asia including Japan. We researched the functions for human health benefits on puffer, whale and sea urchin gonad sauces that we had newly developed. We examined the odours and tastes of these fish sauces as compared with those of traditional fish sauce of nam pla in Thailand and soy sauce in Japan using GC/MS and sensory evaluation methods. We found the characteristics of 2-hydroxypropionate ingredients as a fruity odour from puffer and whale sauces, and 2-furanmethanol ingredients as a caramel odour from sea urchin gonad sauce using GC/MS. The antioxidant properties of these sauces were examined using the ORAC and the ESR methods. High antioxidant activities, i.e. the peroxy radical elimination activity and the hydroxyl radical scavenging activity, in puffer and whale sauces were shown by ORAC and ESR methods. Furthermore, these fish sauces were researched by a next-generation food functional estimation method. This is known as the new simultaneous measurement method and it uses cellular signal transduction mechanisms. This method allows the simultaneous measurement of chemiluminescence and fluorescence by LED light indicating superoxide anion radical generation and intracellular calcium ion (Ca<sup>2+</sup>) concentration, respectively, of neutrophil-like HL60 culture cells from the view point of the mechanism of signal transduction systems in the cell. Puffer and whale sauces indicated the both reactions of enhanced innate immune activation as the superoxide anion radical generation and anti-inflammatory activity. On the other hand, we found that the apoptosis induction from sea urchin spine-like shell ingredients was detected by some caspase activities. In conclusion, it was found that these sea materials had many benefits for human health. These include antioxidant and anti-inflammatory properties and apoptosis induction activities as well as the goodness of their odour and taste. (This work was supported in part by the Grant-in-Aid for Scientific Research (C) (23500949) from the Ministry of Education, Culture, Sports, Science and Technology of Japan.)

### Dynamic characteristics of baby food and dietary education for the weaning period

poster board ID 328-3-15

Country	Japan
Lead author	<b>Yoko Okamoto</b> (Suzugamine Women's College)
Co-author	Keiko Yoshida (Tsukuba International University)

#### Aim

The number of infants who do not chew, or cannot chew, their food is increasing in recent years. There are various and complicated causes and a range of social backgrounds that may be involved. Likely causal factors include practices of feeding babies and infants with foods that are 'too soft' and the extensive use of, and reliance on, commercial baby food. In this study, the physical properties of handmade baby foods and commercial baby foods were measured and compared, the problems of feeding infants entirely with commercial baby foods were investigated and a discussion was carried out on 'good eating practices of babies in the weaning period'.

#### Method

Handmade baby foods were prepared and tested. This included five foods for 5-month old babies, nine foods for 7-month old babies and 11 foods for 9-month old babies. Commercial baby foods were also tested. This included three products for 5-month old babies, ten products for 7-month old babies, and 11 products for 9-month old babies. The viscosity of the foods was measured by using a B-type viscometer (B8M, Toki Sangyo). The breaking stress was measured using a rheometer (RE-3305, Yamaden Co.)

#### Results

The tests showed the following results. The viscosity could not be measured by using the B-type viscometer for any of the 25 handmade foods. On the other hand, it was possible to measure the viscosity by using the viscometer for the majority of the commercial baby foods. Handmade foods for 5-month-olds, 7-month-olds and 9-month-old babies showed larger breaking stress values compared to the commercial foods of the corresponding month, and the differences were significant in all of the categories of 5, 7 and 9 months ( $p < 0.05$ ,  $p < 0.05$ ,  $p < 0.0001$ , respectively).

#### Conclusion

The handmade foods were found to have larger viscosity and breaking stress values than the commercial foods, showing that they are 'harder'. The commercial baby foods for 7-month old babies and particularly those for 9-month old babies were much softer than the handmade foods for babies of the same age. Therefore, commercial baby foods are likely not appropriate for building the chewing ability of infants.

### Sustainable programs of women's empowerment for developing countries: From the perspective of home economics

poster board ID 337-3-16

Country	Japan
Lead author	<b>Kei Sasai</b> (Japan Women's University)
Co-authors	Haruko Amano (Japan Women's University) Masako Takamasu (Japan Women's University) Fumiko Iida (Japan Women's University) Kazue Mochizuki (Akita University)

#### Aim

The aim of this study is to empower women in developing countries through clothing and dietary programs based on home economics. In many developing countries, women have very few opportunities to earn a living. By learning through our programs, they can obtain various skills and increase their opportunities of making a living. This study supports UNESCO's 'Education for All' movement.

#### Method

The following steps were carried out in the implementation of this program: 1. collect and analyse the reports of Japan Overseas Cooperation Volunteers (JOCV) who have been dispatched to Asia, Africa, Oceania and Latin America over the past five years; 2. conduct field studies in several countries; 3. identify problems in everyday life in these countries; 4. pinpoint the causes of those problems and develop some programs to solve them; 5. devise cookery programs in order to help local women to produce food products, which they can then sell. (Recipes should be easy to follow to ensure that the end product has a similar taste every time and can then be sold as merchandise); 6. create handicrafts and dressmaking programs so that local women learn some skills that will help them produce commercial goods. (Goods should be easy to make. It is preferable that all goods should be of the same size but various designs and colours are recommended in order to increase the variety of goods); 7. develop a textbook so that JOCV and others can teach these programs in developing countries; 8. carry out the programs in Ghana and Guatemala using the textbook.

#### Results

It was observed that the production and sale of food can help local women to earn a living. In particular, food products such as jam and cookies made from local farm products are recommended because women can easily obtain the necessary raw materials to make these products and they are easy to make and sell. Skills for handicrafts and dressmaking are useful in these countries because with such skills women can make fancy goods and accessories which can be sold.

#### Conclusion

The practice of the programs based on home economics proved to be of great value in making a positive contribution to the improvement of women's quality of life and the enhancement of their self-support in developing countries. The textbook is useful when teaching local schoolgirls and women the programs. JOCV now use the textbook in many developing countries and help local women to earn a living.

### The linguistic structure of the expression of deliciousness in Japanese gastronomic comic books, Oishinbo

poster board ID 349-3-17

Country	Japan
Lead author	<b>Akiko Okazaki</b> (Kyoto Prefectural University)
Co-authors	Kimiko Ohtani (Kyoto Prefectural University) Motoko Matsui (Kyoto Prefectural University)

#### Aim

In order to clarify the structure of the linguistic expression of the deliciousness in the modern Japanese language, we collected the words from the various scenes in the famous gastronomic comic books, 'Oishinbo, vol.1 to 102', in which the deliciousness of not only many kinds of foodstuffs but dishes were discussed.

#### Method

The expressions of the deliciousness were firstly classified into seven groups based on the situation used as follows: the expression by the sense of taste, the sense of smell, the sense of touch, the sense of sight, the sense of hearing, knowledge and/or experiences, and the others. Then the words used in the expression were classified into three categories depending on its linguistic property as follows: sensory descriptive word, non-sensory descriptive word, and evaluative word. By combining these two different classifications, the linguistic structure of the expression of the deliciousness in Japanese was analysed.

#### Results and discussion

There were 2147 varieties of foods counted in Oishinbo. And there were 2074 patterns of the expression of the deliciousness of the food. From this, 918 kinds of words were extracted after excluding the repetition of the same expression and the word. In the classification based on the situation used, the expression by the sense of taste was the most common (23.9%) followed by smell (16.3%), touch (15.0%) and sight (12.5%) in the total expressions (2074). The linguistic classification of the words (918) showed that the sensory descriptive words categorised to the sense of sight were the most common (191) followed by touch (186). In addition, among the sensory descriptive words categorised to the sense of touch, sight and hearing, many kinds of onomatopoeic words were shown to be characteristic. When combining these two different classifications, the expression of the deliciousness by the sense of taste was shown to be consisting mostly of the synesthetic expression by using the sensory words categorised to the other senses. This was especially so for the senses of touch and sight, and there were very few words peculiar to the sense of taste.

### Factors related to Korean university students' gender egalitarianism within families

poster board ID 359-3-18

Country	Korea
Lead author	<b>Young Eun Chang</b> (Chung-Ang University)
Co-authors	Miyoung Sung (SeoKyeong University) Hee-Kyung Kwon (Changwon National University)

The purpose of study was to investigate the factors that are associated with gender egalitarianism in Korean families among male and female college students. The current study focused particularly on the roles of parents' employment, attachment with parents, the students' achievement motivation and attitudes toward the consequences of mothers' working in predicting their gender egalitarianism. A total of 338 students from five universities located in the Seoul and Kyungnam areas of Korea participated in this study. Controlling the age, family income, and parents' current employment status, attachment with parents, achievement motivation, beliefs about cost of maternal employment and beliefs about benefit of maternal employment were entered as independent variables. The different patterns and how they related to the factors of gender egalitarianism by gender were also investigated. Statistical analyses indicated that, not only the level of gender egalitarianism in family but also the factors associated with Korean university students' gender egalitarianism in family, differed by gender. Female university students' gender egalitarianism in family was significantly higher than that of male university students' gender egalitarianism in family (74.4 for female students, 65.5 for male students,  $p < .001$ ,  $df = 154$ ). For female university students, attachment with mother and belief about cost of maternal employment were related to gender egalitarianism in family. Attachment with mother was positively related to female students' gender egalitarianism in family, thus, the higher the level of the attachment with mother was, the higher was the level of gender egalitarianism in the family. Female students' belief about cost of maternal employment, in contrast, was negatively related to gender egalitarianism in the family. The more the female university students believed that maternal employment can be harmful for children, the lower was their gender egalitarianism. For male university students, achievement motivation was the only predictor of gender egalitarianism in family. Male students who reported higher levels of achievement motivation also reported higher level of gender egalitarianism in families, supporting the theory of androgynous gender role. Attachment with parents or belief about the consequences of maternal employment on children did not show a significant relationship to gender egalitarianism of male students. The results showed different areas of factors related to gender egalitarianism in male versus female college students. Further investigations of cultural differences in determining the predictors of gender egalitarianism are required. The results are also anticipated to contribute to developing effective gender role education programs for college student or even for children and young adolescents.

### An assessment of college students in family and consumer sciences/home economics toward sustainability as it relates to apparel

poster board ID 372-3-19

Country	United States
Lead author	<b>Nina Bostic</b> (Meredith College)
Co-authors	<b>Deborah Tippett*</b> (Meredith College) Gary Moore (North Carolina State University) *co-presenter

#### Aim

The purpose of this study was to (a) determine attitudes, knowledge, and behaviours of college students towards environmentally friendly apparel, (b) determine if there was a relationship between age and size of students' hometown in regards to knowledge, attitude and behaviours, (c) determine if there were differences in knowledge, attitude and behaviours between majors (fashion majors or family and consumer sciences).

#### Method

Surveys were administered to introductory level courses in family and consumer sciences (FCS) at three institutions of higher education in North Carolina. Each class member turned in a survey, for a total of 137 surveys. Data were analysed using descriptive statistics, t-tests, one-way Analysis of Variance, and Pearson Correlation Coefficients.

#### Findings

Low to moderate levels of knowledge regarding environmentally friendly apparel was possessed by students. Students supported the idea of being environmentally friendly toward clothing and participants showed a practice of environmentally friendly behaviours. The type of major was not a factor in showing a higher awareness of environmentally friendly apparel and there were no relationships between hometown size and knowledge, attitude and behaviour. Finally, no relationship was found between age and knowledge and behaviour; however, the older students possessed a more favourable attitude toward environmentally friendly clothing.

#### Conclusion

Design curricula in all subject areas of FCS will need to address sustainability. FCS Professionals need to be educated on environmental issues. They also need to encourage student's organisations to sponsor environmental events on campus in building awareness to environmental issues campus wide. FCS professionals also need to promote environmental campus events, and structure their lesson plans in sequence with the environmental events. The profession needs to see opportunities to involve their campus and students in community outreach collaborations. Furthermore, there is a need for FCS professionals to incorporate the elements of environmental fabrics and redesigning existing garments into design courses. Future research should aim to evaluate eco consciousness of students at other institutions of higher education. It could also evaluate the existing environmental initiatives on campuses of higher education and expand the scope of the research to include all environmental issues in FCS. It would also be important to survey FCS professionals to ascertain their knowledge, attitudes, and behaviours towards environmentally friendly apparel. Additional research regarding the motivational factors present among consumers, fashion opinion leaders, designers, manufacturers, and retailers is recommended. Finally, a longitudinal study that will observe how existing programs promote environmental awareness is recommended.

### Preparation of allergen-free bread from various types of millet

poster board ID 392-3-20

Country	Japan
Lead author	<b>Keiko Fujii</b> (Japan Women's University)
Co-authors	Miki Tanabe (Japan Women's University) Keiko Fujii (Japan Women's University) Asako Marui (Japan Women's University) Makiko Nakashima (Japan Women's University) Atsumi Kaneoya (Japan Women's University)

Millet is high in calcium, iron and dietary fibre. In addition, foam foods made from millet flour do not contain the three major allergens of wheat, egg, and milk. Therefore, millet flour is expected to be utilised as one of the ingredients for allergen-free foods. We investigated the baking properties of bread made from millet flour for allergen-free bread. The objective of this research was to prepare bread from various types of millet flour and also to analyse the quality change with time. White sorghum, quinoa and finger millet were selected as the ingredients in the bread. Basic components in the bread were millet flour, sugar, salt, yeast and water. The behaviour of bread processing was studied depending on composition, fermentation time, baking condition etc. The bread made from white sorghum was cooked at 220°C for 24 minutes; from quinoa, at 170°C for 30 minutes; and from finger millet, at 200°C for 30 minutes. Inulin, hydroxy propyl methyl cellulose (HPMC) and carboxy methyl cellulose (CMC) were added to improve the quality of the bread. The specific volume, rupture properties, and the moisture of the bread crumb were determined after five-day preservation at room temperature (25°C, relative humidity 60%) or at -20°C. X-ray diffraction and sensory evaluation were also conducted. On preparing the bread from various types of millet flour, much more water was added than the bread made from wheat flour. In the case of white sorghum bread, the ratio of water to flour was 140% to 100%; in quinoa bread, water to flour was 120% to 100%; in finger millet bread, 90% to 100%. When inulin was added, the specific volume of the bread increased. The moisture of the bread crumb didn't change by freezing. Therefore, the refrigeration was thought to be effective for the purpose of maintaining the bread quality. In sensory evaluation, the white sorghum bread was brittle; the crust of both the quinoa bread and the finger millet bread was crisp and their crumb was moist. Bread made from white sorghum, quinoa, and finger millet flour, not wheat flour could be prepared. It's probable that millet bread will be applied to the development of allergen-free foods.

### Analysis of Japanese senior high school home economics textbooks: Emphasising textiles and clothing safety/security in everyday life

poster board ID 400-3-21

Country	Japan
Lead author	<b>Ritsuko Imamura</b> (Wakayama University)
Co-authors	Junko Akamatsu (Wakayama University) Nami Yamamoto (Wakayama University)

Safety and security in daily life have recently been a social problem in Japan. The contents of home economics education should consciously reflect this. Our previous study reviewed this problem for Japanese junior high school home economics textbooks and pointed out that they have only treated the use and care of sewing implements and home appliances from the viewpoint of safety and security and that they lacked systematic presentations relating to clothing in life. Therefore, we analysed the current senior high school home economics textbooks plus the government course of study over three decades. Our definition of safety and security was based on the report by the Ministry of Education, Culture, Sports, Science and Technology in Japan (2004). They gathered the factors threatening safety and security in our social life and classified them into 11 main areas: crime, accidents, natural disasters, wars, computers/internet, health, food, social life, economy, politics/administration, and environment/energy. We have already reported that these 11 areas, except for food problems, were connected with our security and safety in textiles and clothing life. Our current analysis of textbooks and the course of study showed:

1. There was a description of safety and security in the 4-unit textbook, but nothing in the 2-unit book. There were no systematic presentations of safety and security in either;
2. The word 'safety' in textiles and clothing is used for the first time in the forthcoming course of study, however, less frequently than for food and housing. Descriptions of safety for products and equipment appear in the previous and current course of study;
3. The word 'safety' was applied not only to food and housing but also to children, the elderly, consumer life, and the environment in the forthcoming course of study. Interestingly, the word 'security' was used for the first time here.

In conclusion, it was clear that there is a lack of contents concerning safety/security in high school textbooks of home economics in the field of textile and clothing. It reflects the lack of contents as well in teacher education, as safety/security in the field of textiles and clothing is not shown in the course of study. We strongly feel that not only do teachers need further educational support but that children also need a suitable environment to learn about safety and security.

### Issues in improving the working conditions of the local consumer counsellors in Japan

poster board ID 402-3-22

Country	Japan
Lead author	<b>Noriko Watase</b> (Iwate University)

In order to strengthen the safety nets for the increasingly complex consumer accidents, the Consumer Affairs Agency was established in 2009. Furthermore, consumer consultations have been of growing importance at the local level, and the local consumer counsellors are expected to play an important role in the achievement of these policies. In home economics textbooks for secondary students, it is noted that the consumer affairs centres and consumer counsellors are quite helpful in solving consumer accidents. However, according to a survey on the local consumer counsellors' working environment that was carried out by the Cabinet Office and released in 2008, most of the counsellors work part-time at a low wage, and some are dissatisfied with the working treatment. The aim of this study is to examine the concrete content of the local consumer counsellors' 'dissatisfaction' and to seek a solution. A questionnaire survey was conducted among the 50 local consumer counsellors in 2010. The results of this survey showed that 82.5 per cent of them work 5 days per week and 6–6.5 hours per day. The consumer counsellors were aware of the importance of their role; however, the more they accomplish in their career, the more they feel discontented with the treatment. For example, the contract period is one year for most counsellors; therefore, they experience anxiety as they consider such practices deceitful. In addition, they are eager to enhance their counselling skills and hope to make good use of the opportunities to update their knowledge and skills.

### Present conditions and problems of housing education in relation to home economics

poster board ID 406-3-23

Country	Japan
Lead author	<b>Michiko Seno</b> (Kagawa University)

#### Aim

The major earthquake in Eastern Japan has made us deeply realise the importance of a secured, safe and stable living environment for the daily lives of the Japanese. At the same time, it also became clear that it is critical to improve the quality of the residences and environment. It can be said that higher standards of literacy in the residential environment, i.e. importance of housing education, should be fostered. In order to achieve this, it is expected that housing education should be incorporated substantially in home economics classes of elementary, middle and high school education. The present study investigates the various perspectives from housing education in Japanese home economics, and clearly shows the results in relation to the topic.

#### Method

The present study employs the following by investigating housing education in relation to home economics: 1. Consolidation of new course of study and textbook content; 2. Questionnaire about basic knowledge and learning experiences of university students; 3. Fact-finding survey for in-practice home economics teachers regarding class contents (2009–2011)

#### Results

In the course of study, home economics classes aim at constructing a sustainable society. Housing education is a compulsory subject in elementary, middle and high schools, and systematic learning is necessary to comply with different levels of development. In the textbooks, life skills acquisition, in relation to environment and safety perspectives and community building, are being taught. The textbook contents also aim at the sustainability of the society. Results of the university students' questionnaire show that university students do not have adequate understanding of the learning contents. Results of the home economics teachers reveal that the teachers are conscious of their lack of knowledge in housing education, and most are troubled about this lack of knowledge and how to acquire the specific knowledge. From the results of the advanced-practice teachers, support from university faculty and construction specialists about new information and methods, with participation in research seminars, have contributed to the increasing standards of the conducted classes.

#### Conclusion

In future, it is necessary to increase the number of seminars and learning sessions for the topic of sustainability in our society. Additionally, it is important to produce efficient learning materials and spread the related knowledge.

### Consideration of the 'Third Place' to raise citizenship awareness in students and its educational importance

poster board ID 446-3-24

Country	Japan
Lead author	<b>Yumi Shimura</b> (University of Yamanashi)
Co-authors	Sumiko Ohashi (Shohoku College) Aiko Okazaki (Housing Research Foundation, Jusoken)

#### Aim

In recent years, with weakening of family functions and changes of family relations, social support networks in communities are breaking down. Under these circumstances, challenges to create places to stay and revitalise networks in communities are addressed by partially opening up homes for local residents, or using vacant houses and shops. Achievements have been recognised to a certain extent. This study examines the creation of a third place (hereinafter the Third Place) where anyone, from a child to an elderly person, can feel free to drop by and which is neither a home, workplace, nor a school. Particularly this study aims to (1) consider the role of the Third Place in fostering citizenship awareness through students voluntarily participating in the establishing process and operation; and (2) consider its educational importance.

#### Methods

In August 2010, in a case study survey of a Third Place, we conducted a survey of actual operational conditions of Machi no Manabiya Haru House in Kyoto, a suburban 'machi no engawa (community verandah)' that has been seen in many parts of Japan. From April 2011 to July 2011, we conducted an attitude survey of 909 junior high-school students in Japan.

#### Results and discussion

The Machi no Manabiya Haru House was an original idea that was self-financed by the owner, who opened up his own house to public, and thereby created a place where anyone, including children, elderly people, and people with disabilities, could feel free to drop by. It was also used as a place for gatherings such as university seminars, a music appreciation club, and a group to support cancer patients. Furthermore, it offered Kyoto-style risotto for breakfast and job assistance for young people. The operation from a viewpoint of community-based ordinary citizens gave valuable suggestions to this study. The attitude survey of junior high-school students revealed that they wanted to have the Third Place as a place where they were able to play sports and talk with their friends, relatives, and younger children. It also showed that although about 60 per cent of students hoped to participate in activities to make the prefecture and city communities better, they scarcely took part in actual community activities.



### Learning about parenting before becoming parents in Japan

poster board ID 457-3-25

Country	Japan
Lead author	<b>Katsuko Makino</b> (Utsunomiya Kyowa University)

The objective of this study is to examine how childcare experiences and learning of child care at school before becoming parents effects post-parenting behaviour. We predict that the childcare experiences and the learning of child care are associated with positive outcomes in actual parenting views and behaviour. Using International Comparative Research on Home Education: 2005 data, we first examined the relationship between pre-parental experiences and education, and post-parental childcare behaviour. The main results were: Japanese parents had very little babysitting experiences, and one third of Japanese parents had never learned or had any experiences in child care before becoming a parent. Taking care of small children prior to becoming a parent is associated with mothers' positive feeling about raising a child, and increased active behaviour with their children. Learning about child care at school was not a prominent factor predicting parental outcomes in Japan. It is important to note, however, Japanese fathers of this sample have not learned about child care at school. We believe that home economics education at school may promote more positive attitudes toward child care, and more involvement of fathers in child care.

### Effects of cooking conditions on the optimum cooking time of vegetables

poster board ID 458-3-26

Country	Japan
Lead author	<b>Yoko Endo</b> (Ochanomizu University)
Co-authors	Midori Kasai (Ochanomizu University) Kumiko Iijima (Ochanomizu University)

#### Aim

When we cook vegetables, the optimum cooking time until their hardness becomes optimum is determined depending on the kinds and shape of vegetable. When we boil vegetables, the ascending rate of water temperature and the use of remaining heat after turning it off affect the boiling time. To predict the optimum cooking time is important for both palatability and energy consumption. Vegetables harden and soften simultaneously during cooking; the former mainly takes place in the low temperature zones, and the latter in the high ones. We have previously reported the expression of the hardness variation of vegetables during cooking. Combining this expression and the inner temperature, we can calculate the hardness change of vegetables under various cooking conditions. In this study, the effects of shapes of sample, ascending rate of water temperature and the use of remaining heat on the optimum cooking time of vegetables were investigated based on the simulation of hardness change.

#### Methods

One to 4 litres of water was boiled and stood for 3 hours after turning off the heat and water temperature was measured every second using thermocouple. Prediction of inner temperature of the sample by finite difference method was carried out based on the measured temperature of water in the container. Hardness of potato, radish, and carrot was calculated using the inner temperature and rate constants for softening and hardening as reported previously.

#### Results

When the ascending rate of water temperature and sample volume was the same, the optimum cooking time for various shaped samples was in the order of: sphere, cube, rectangular, cylinder, slab. Sphere samples had the longest cooking time and the smallest surface area. The smaller the surface area of the sample, the longer the cooking time. When the ascending rate of water temperature was slow, the difference in optimum cooking time among the various shaped samples became smaller due to hardening before boiling. Even in the same water temperature history and the shape, the cooking time differed in the order of: radish, carrot, potato. The use of remaining heat was effective to avoid overcooking of vegetables, especially when they were combined with slow ascending rate of water temperature which caused more hardening.

#### Conclusion

We can control the hardness of vegetables during cooking by considering the shapes of samples, ascending rate of water temperature and the use of remaining heat on the basis of the prediction of the hardness change.

## The impact of a subsistence home garden project on pre-school children's nutrition in Eatonside, the Vaal Triangle, South Africa

poster board ID 477-3-27

Country	South Africa
Lead author	<b>Mosa Selepe</b> (University of Zululand)
Co-author	Sheryl Hendriks (University of Pretoria)

### Aim

This study aimed to determine the impact of home gardens on nutrient intake, access to food and dietary diversity of pre-school children in an informal settlement in Gauteng, South Africa. The participants were 40 children aged two to five years (22 boys and 18 girls), whose caregivers participated in a home garden project.

### Method

Data was gathered using quantitative food frequency, 24-hour recall and dietary diversity questionnaires to determine the food consumption pattern of the child. Caregivers were asked to complete the questionnaires on the children's nutrient intakes with the help of the trained fieldworkers. The mean intakes of energy, total protein, total fat, carbohydrates, total dietary fibre, calcium, iron and vitamin A are discussed. The minimum, mean and maximum intakes of pre-school children were analysed and compared to requirements and recommendations for their age. A list of the foods which were most frequently consumed was drawn up. The study compared the pre- and post-project food consumption frequencies, dietary diversity and nutrient adequacy.

### Results and discussion

The findings showed that access to food and food consumption improved with the addition of nutrient-rich produce from the garden. Intakes of all nutrients improved by the end of the project, except for energy and calcium, which dropped marginally, but both remained at around 50 per cent below requirements. No significant changes in the consumption of macronutrients and fibre were found through paired samples t-tests. Encouraging and positive changes were evident in the consumption patterns and consequently in improved intakes of most nutrients; statistically significant changes in intakes of macronutrients were not found. It is concerning that the intake of carbohydrates did not improve significantly or enough to satisfy even half the energy requirements of the children. Intakes of energy, fat, fibre and calcium remained inadequate by the end of the study and are crucial for growth and health. The increase in dietary diversity was statistically significant. The mean nutrient intakes of iron and vitamin A improved but energy and calcium intakes dropped marginally. However, the improvements were not sufficient to overcome an alarming state of malnutrition or ensure an adequate diet of the children in the study sample.

## Food safety knowledge and practices of adolescents in Brunei Darussalam and the need for food safety education

poster board ID 483-3-28

Country	Brunei
Lead author	<b>Ampuan Norsarjanawati Ampuan Hj Said</b> (Ministry of Education, Brunei Darussalam)
Co-author	Dr Philip Button (RMIT University)

Food safety education should commence from an early age, before major responsibilities for food purchase/preparation are taken on during adulthood. Before developing effective and strategic food safety education programs, current awareness of food safety issues and present behaviour needs to be known. Thus, a survey was undertaken among secondary school students in Bandar Seri Begawan, Brunei Darussalam, to ascertain their food safety knowledge and current practices, so that a food safety education program could be developed to target areas among this age group. Of most concern was that while many of the respondents did possess good food safety attitudes and did demonstrate sufficient food safety behaviour, a substantial amount did not. For example, 78% of respondents either 'never' or 'sometimes' kept cooked food at 60°C or above until serving, while only 42% cleaned and sanitized the kitchen tops and areas after food preparation and cooking. Other main issues were only 19% of respondents knew how to defrost raw meat correctly and only 11% of respondents were aware that raw meat should be stored at the bottom of the refrigerator. Overall, it would appear that the food safety knowledge and practices of adolescents in Brunei Darussalam were inadequate. As a result, a comprehensive food safety education program should be developed and incorporated into the school curriculum in order to reduce the incidence of foodborne disease in that country.

### Thermal conditions in the bedroom and human responses during nocturnal sleep in the Japanese summer

poster board ID 486-3-29

Country	Japan
Lead author	<b>Hiroko Kubo</b> (Nara Women's University)
Co-authors	Mariko Kanazawa (Nara Women's University) Takuko Yanas (Nara Women's University) Norio Isoda (Nara Women's University)

#### Aim

Typically, individuals use air conditioning or open a window to reduce room temperature in summer. According to a questionnaire in the Kansai area in the central part of the Japanese Islands, the residents who were not using the air conditioner all night for sleeping were about 80% in spite of it being hot in the Japanese summer. It was reported that of the 22% of college students in Japan who use air conditioning during sleep, 90% run the air conditioner for only one to three hours on a timer (Miyahara 2004). So, a large number of cases of insomnia are reported in summer because of the heat. To clarify thermal comfortable environments for satisfied sleeping, we investigated the actual thermal conditions in bedrooms and physiological and psychological responses during night sleep in summer.

#### Method

Subjects were six healthy female college students. They slept in different rooms of a sustainable case study house for two nights, and their own bedroom for two nights under different conditions, using air conditioning or opening a window, in summer. We measured air temperature and relative humidity in the bedroom and bed climate during night sleep in summer. We investigated body movement, core and skin temperatures, heart rate and thermal sensation during sleep in the bedroom.

#### Results and conclusion

The bedroom temperatures were from 24 to 32 degrees and relative humidities were from 60% to 80%. At the sustainable case study house, the room temperatures in the basement room were lower than the other rooms. The room temperatures were highest when room windows were shut in the subjects' own bedrooms. Changes in room temperature affected the skin temperature and the core temperature during sleep. There are correlations between the room temperatures and the skin and core temperature. The thermal sensation of the whole body were 'warm' above 28 degrees at sleep onset time and above 29 degrees at sleep offset time. The thermal comfort levels were 'comfortable' below 30 degrees at both sleep times. The subjects felt most comfortable about 27.5 degrees. Those room temperatures were realisable by using an air conditioners or opening a window in the subjects' bedrooms or in the basement room of the sustainable case study house.

### Utilisation of 'shadow' education and its educational expenses in Japan

poster board ID 487-3-30

Country	Japan
Lead author	<b>Noriko Kanie</b> (Utunomiya Kyowa University)
Co-author	Satomi Terasaki (Fukuoka University)

From an international perspective, Japan is a country in which the private burden for education expenses is extremely heavy. In terms of educational stages, the private burden for preschool education (education provided by institutions outside the home before children enter elementary school, such as kindergarten) and higher education (universities, graduate schools, junior colleges, technical colleges, etc) is especially large (the public expenditure is small). However, even for mandatory educational stages such as elementary school and middle school, there are many children who utilise education outside of school, such as cram schools and correspondence education. Recent research reports that children raised in low-income families are disadvantaged in terms of school achievement and access to university. Thus we studied the state of utilisation of 'shadow' (extra-curricular) education and its expenses in cities outlying metropolitan Tokyo and in the Tohoku region. The data used in this study came from Japan Educational Longitudinal Study (JELS) conducted by Ochanomizu University. The JELS examines various patterns of human development such as academic performance, ability, aspiration, career, academic qualification, job, status attainment, interactions among family, school education, out-of-school education, and socio-cultural environment from a comprehensive framework of the transition from childhood to adulthood. Questionnaires were collected from children and parents. Our study revealed that: in both regions, the higher the grade level, the greater the number of extracurricular education users; expenses associated with extracurricular education is higher in the Tokyo metropolitan area; the higher the household income, the greater the percentage of households utilising extracurricular education; and the more the children use extracurricular education, the better their grades. Even in Japan, children's academic paths and achievements are affected by their family background (especially economic circumstances). The expansion of public assistance to provide remedy is anticipated.

### Revitalisation of investigative activities through independent projects: Case study of Japan Association of Home Economics Education's research projects on contemporary issues

poster board ID 498-3-31

Country	Japan
Lead author	<b>Midori Otake</b> (Tokyo Gakuhei University)

#### Aim

The Japan Association of Home Economics Education (JAHEE), established in 1958 to promote theoretical and practical investigative activities on home economics education, has 1086 members including 87 students. The purpose of this report is to analyse a program of research projects on contemporary issues recently organised by JAHEE, an attempted revitalisation of investigative activities among members, and to examine how to empower investigative activities of JAHEE in the future by reflecting on the effects and outputs of this trial.

#### Method

The analysis involved inspecting each project activity and examining the process and outputs of the research. In September 2008, JAHEE planned 'Research projects on contemporary issues' and requested members to join the project. JAHEE advertised the theme of the project to members and the focus on the following three themes: contemporary issues in food education; home economics learning based on the community; and significance and role of home economics education in senior high schools. The investigative period was two years from 2009 to 2010 and the obligations for the project were to submit the research plan and to present the findings at the annual meetings of JAHEE.

#### Findings and conclusion

The research project involved 52 members from eight working groups (led by Kikue Nakamura, Kimiko Kouno, Yayoi Hikage, Midori Otake, Noriko Arai, Sahomi Kodaka, Eriko Matsuoka and Nao Takagi) under the three themes. Members were largely university researchers and school teachers from all over Japan. Each group reported their working process and outputs twice at the annual meetings, by means of a research presentation in 2009, and by means of a poster presentation accompanied by attending the symposium in 2010. The research reports were available on the homepage of the JAHEE website, and were widely shared. Most groups were very active in performing their investigative tasks, such as obtaining the government budget to conduct detailed studies on their topics, writing treatises in the journals of JAHEE, publishing books, and so on. As a result, their activities far exceeded the expectations of JAHEE. From these facts, it can be concluded that the trial was a success in terms of facilitating investigative activity among members. The following are the two main reasons for the success of this project: guaranteed independency and freedom that facilitates creativity for active investigation among project members; and sharing of the process and outputs of the projects with all members with information open to everyone.

### An exploratory study for the development of a parent education program: Developing parents' capacities for sustainable parent-teen relationships

poster board ID 502-3-32

Country	Korea
Lead author	<b>Soohee Lee</b> (Seoul National University)

The purpose of this study is to get insights into the parent education program 'Developing parents' capacities for sustainable parent-teen relationships'. We made reviews of related literature and gathered questionnaires from 75 pairs of parents-middle school students and 62 pairs of parents-high school students. The results are as follows. First, we tried to find out how well parents understand the characteristics of their children. We compared parents' understanding of their children with the children's self-understanding and the similarity matrix was constructed from the questionnaires. The similarity was strong in external characteristics such as 'being a troubleshooter in their class' (similarity matrix = .883), whereas it was weak in internal characteristics such as 'being as closed as an oyster' (similarity matrix = .575). And parents didn't take their children's difficulties seriously when dealing with practical problems their children are facing in personal, family and school life. From these results, we think the parent education program should include methods for parents to develop the capacity to understand their children's internal characteristics and their children's difficulties in personal, family and school life. Second, from the studies of other researchers, four sessions and 18 items were selected for the parent education program: building positive self-concept as a parent (five items); building sustainable parent-teen relationships (four items); sharing teens' difficulties (four items); building strong family through participation and communication (five items). With regard to the importance of this content, the teens' response was that the second session is most needed by their parents, whereas parents' reply was that the third session is most needed by themselves. Third, the opinions of parents and children were significantly different in the third session ( $p < .001$ ) and fourth session ( $p < .05$ ). Among 18 items, the opinions of parents and children were significantly different in seven items. Fourth, based on the results of this study, we propose a framework for the 16-hour parent education program.

### A study on life education counselling for maladjusted adolescents in school

poster board ID 529-3-33

Country	Korea
Lead author	<b>Jin-Kyung Chang</b> (Sook-Myung University)
Co-author	Kyung-Im Chang (Sook-Myung University)

#### Aim

This study aims to investigate factors affecting school maladjustment and counselling interventions by analysing counselling cases about education for living for maladjusted adolescents. It analysed the counselling with one of eight adolescents from second year in middle school to third year in high school with one of six caregivers, who were referred to the researcher as caused by maladjustment in school.

#### Method

The theoretical framework of counselling intervention was object relations family therapy theory and Bowen's family therapy theory. Grounded theory of Strauss and Corbin was utilised.

#### Results

Factors of maladjustment in school were largely divided into intrapsychic factors (avoidance, anger-out, low self-esteem, helplessness) and family relation factors (conflict with a caregiver, trouble among family members, indifference of a caregiver, alienation in family). 'Interventions with the supportive approach using object relations family theory' included 'acceptance of internal emotion' and understanding the mind and the emotion of interviewees; 'grasp of strength and resources of interviewees' involved searching strong points of interviewees and supporting them; 'enlarging the field of participation' involved making efforts to enlarge the field of participation of interviewees themselves and their families, 'care affective exchange' meant making a previously distant emotional distance closer. 'Those with the educational approach using Bowen's family therapy theory' contained 'cognition of and education about reality' and helping adolescents to accept their reality; 'career exploration' helped them to plan for future; 'understanding of multigenerational transmission process' meant understanding a specific emotional process observed in family for generations as one of Bowen's family therapy theories; and 'analysis of triangles' analysed triangles in which family members did not recognise their current discord and had a reciprocal relation with other groups and helping the relationship. After the counselling, 'cognition of reality', 'affective perspective taking', 'strength finding' and 'career exploration' were observed from the intrapsychic aspect; 'understanding of family members', 'change of communication in family' and 'recognition of individuality of family members' were found in terms of family relationships.

#### Conclusion

This study is meaningful as it provides basic data to help adjustment of adolescents in school with education for school living by determining factors of school maladjustment through analysis of counselling for maladjusted adolescents and their guardians. The results support promotion of the use of parent education programs as well as various adolescent group programs in life education.

### Sedative effect of oolong tea aroma on autonomic nerve activity and mood states (POMS)

poster board ID 532-3-34

Country	Japan
Lead author	<b>Makiko Miyazawa</b> (Ochanomizu University)
Co-authors	Yoshie Komatsu (Ochanomizu University) Kaoru Ebisawa (Kwansei Gakuin University) Kikue Kubota (Ochanomizu University)

#### Aim

Tea is one of the most popular beverages in the world because it is known that drowsiness or stress are eased by drinking tea. In Japan, green and black teas have been consumed widely over the past several decades, but consumption of green tea has been reduced gradually. On the other hand, oolong tea in China is becoming more popular in cafes or as a takeaway PET bottle drink. Oolong tea is also known to be one of the healthy drinks due to its tea polyphenols. Although many kinds of oolong tea are manufactured in China and imported to Japan, their information on the flavour quality and polyphenol contents are limited. The aims of this paper were to investigate the flavour of three typical oolong teas as drink or as food materials, and to investigate the effect of oolong tea aroma on autonomic nerve activity and mood states.

#### Methods

Three kinds of typical and higher-grade oolong tea samples imported from China were purchased at local market in Japan. Dao Hung Pao is high grade and sweet-scented tea, and Huang Chin Kuei and Shui Hsein are produced in large quantities for ordinary consumption. Aroma quality of each tea infusion was evaluated by sensory evaluation employing 12 experienced panelists. Eleven flavour attributes and scored strength of these attributes were used to clarify the characteristics of the samples. The aroma compounds and their characteristic odour were objectively analysed by gas chromatography (GC)-mass spectrometry, and GC-olfactometry.

#### Results and discussion

The aroma of Shui Hsein was stronger – more 'burnt', 'rusty iron', and 'astringent' than others. Huang Chin Kuei and Dao Hung Pao were characterized as 'floral' and 'sweet', and their aroma evaluated as pleasant. Instrumental analyses suggested that jasmine lactone, 2-phenylethanol, and geranic acid, whose odours possess floral notes, contribute to the aroma of Huang Chin Kuei and Dao Hung Pao. Since jasmine tea, which is scented with jasmine flowers, has floral notes and is known to show a sedative effect on autonomic nerve activity, it was presumed that these two oolong teas have a similar sedative effect on autonomic nerve activity. Therefore a mood states test (POMS test) was carried out on Huang Chin Kuei and found to have the same sedative effect. Study on the relaxing effect of oolong tea is ongoing and results will be presented during the poster session.

### Korean baby boomers' post-retirement life planning

poster board ID 548-3-35

Country	Korea
Lead author	<b>Mee Sok Park</b> (Sookmyung Women's University)
Co-author	Mee Ryeo Park (Sookmyung Women's University)

#### Aim

This study aims to examine general characteristics of Korean baby boomers' post-retirement life planning and factors affecting their post-retirement life planning for the purpose of raising the quality of their post-retirement lives.

#### Method

To examine the study issues, the third Korean Retirement and Income Study (2009) conducted by KReIS was used. The subjects in this study sample were 835 Korean baby boomers born between 1955 and 1963.

#### Results

We found that only 45% of Korean baby boomers are prepared for their post-retirement life, possibly because they were a 'sandwich generation' between their parents who they had to support and their children who they had to bring up as well. Only 55% of them were found to have the economic ability to live on their own after retirement, while the reasonable living expenses for post-retirement life (per couple) was found to be around 90% of spending of the previous month. This means that while 90% of the assets owned by Korean baby boomers are real estate, and their income after retirement is likely to decrease, their high level of education and abundant supply of culture lead to demand for a higher level of quality of life and reduced gap between resources, causing conflicts. Korean baby boomers were found to be more likely to prepare for their post-retirement life, if spending for the previous month was lower, non-spending for the previous month was lower, the minimum living expenses for post-retirement life (per couple) were lower, their satisfaction with economic conditions was lower, and their satisfaction with the general life was lower. This indicates that they wanted to prepare for their post-retirement life because they had begun retirement and belonged to the older age group in 2010 when those born in 1955 were 55 years old. Although they could make money by working before retirement, they might become the poorest upon their retirement.

#### Conclusion

Even if the Korean baby boomer generation is expected to use a public pension program as a basic source of income in the post-retirement life, it is hard for the public pension program to become a stable source of income for their life after retirement. Therefore, it is necessary to develop and spread a program to create jobs, provide information on how to prepare for the post-retirement life and make money, and offer post-retirement life education in order to ensure the minimum income.

### Relationships between health of the family-of-origin and self-esteem, marital conflict, and psychological wellbeing among Korean couples

poster board ID 579-3-36

Country	Korea
Lead author	<b>Hong Bo-Hwa</b> (Yeungnam University)
Co-author	Ji-Min Lee (Yeungnam University)

The purpose of this study was to examine structural relations of health of the family-of-origin, self-esteem, marital conflict, and psychological wellbeing among Korean couples. The subjects were 90 married couples living in South Korea who had been married around for 10 years. A total of 180 husbands and wives completed a questionnaire on measures of health of the family-of-origin, self-esteem, marital conflict, and psychological wellbeing. Structural equation modeling was conducted using SPSS/WIN 18.0 and AMOS 18.0 to analyse the data. The major findings were that, firstly, in the case of both husbands and wives, health of the family-of-origin did not have direct effect on the Korean couples' psychological wellbeing, but it had an indirect influence through their self-esteem and marital conflict. Also, health of the family-of-origin directly influenced the married couples' self-esteem and marital conflict. Secondly, self-esteem of husbands and wives had direct impact as well as indirect effect through marital conflict on psychological wellbeing. Also, marital conflicts of husbands and wives had direct effects on psychological wellbeing. The findings of this study were somewhat different from previous studies in that there was no direct influence of health of the family-of-origin on married couples' psychological wellbeing. However, couples' self-esteem and marital conflict significantly mediated the influence of health of the family-of-origin on married couples' psychological wellbeing. These results imply that improving self-esteem and reducing marital conflicts can be effective intervention to enhance couples' psychological wellbeing even if the environment of a couple's family-of-origin was not positive.

## Utilisation of fabric scraps in clothing construction by fashion designers in Lagos State: Implications for creativity and innovation

poster board ID 587-3-37

Country	Nigeria
Lead author	<b>Boiso Maria Owodiong-Idemeko</b> (Adeniran Ogunsanya College of Education)

The essence of this study is to identify the various ways in which scraps of fabrics have been used and to assess the acceptability of these products by consumers.

## Discovering sustainable designs for living and vernacular lifestyles in Tango area of Kyoto, Japan

poster board ID 613-3-38

Country	Japan
Lead author	<b>Toshifumi Sasai</b> (Kyoto Prefectural University, Japan)
Co-authors	Toshio Mitsuhashi (Kyoto Prefectural University Graduate School) Hitomi Nakamura (Kyoto Prefectural University Graduate School)

We have been doing fieldwork for seven years in the area of Tangoyura, Miyazu-city and one year in Kumobara, Fukuchiyama-city, both located on northern Kyoto, Japan. This is a research and investigation project of saving and discovering sustainable designs for contemporary lifestyles from a traditional point of view, and as an environmental education program for college students. We hold two workshops every year in summer and winter in Tangoyura, and one in winter time in Kumobara. We also keep on searching throughout the year to find actual situations and lifestyles through the changing seasons. Old lifestyles are disappearing these days in Japan, because of the rapid development in industry and the economy. Japanese old lifestyles were sustainable and had good relationships with the natural environment, which is an important factor for modern society. But such lifestyles can be regarded as a 'lifestyle culture in danger of extinction'. We have been trying to discover the history and culture of the town and tools for lives in the Tangoyura area, which has beautiful landscapes with ocean, mountains and a river. There are precious things and lifestyles that have been maintained for a long time, and they should be saved for the future. But it is difficult to hand traditional lifestyles to the next generation because the population of younger age groups are decreasing. This project is a proof of saving the 'lifestyle in danger' through fieldwork with college, high school and primary school students as part of an environmental education program. Also, through this project, we are making plans to give new value to the town that will solve the problems of the community.

### Using programs of study to sustain family and consumer sciences programs in the United States

poster board ID 654-3-39

Country	United States
Lead author	<b>Karen Alexander</b> (Texas Tech University)

The purpose of this presentation is to highlight a framework of curriculum organisation for Family and Consumer Sciences (FCS) in the United States. This framework, known as a Program of Study (POS), organises FCS courses and content in coherent sequences that connect to college and career opportunities. The POS is also a framework for college and career decision-making that can be used with high school students. Because there is an emphasis on college and career readiness in US high schools, FCS Programs utilising POS have new opportunities for local program sustainability. As part of a funded project, this researcher has been involved in the development of 23 POS supporting the FCS curriculum. The POS are used as a basis for local professional development of FCS teachers and guide the development of local curriculum. Local POS implementation is an expectation of federal legislation entitled Carl D Perkins IV Reauthorisation Act of 2006. Perkins funding supports Career and Technical Education which includes FCS Programs. Perkins outlines expectations for POS:

- Align rigorous academic standards and student achievement standards
- Include academic and CTE content in a coordinated, non-duplicative progression of courses
- Are relevant and challenging at the secondary and postsecondary level
- Lead to employment in high skill, high wage, or high demand occupations
- Offer opportunities for dual credit
- Lead to a degree, certificate, or credential.

POS are organised by 16 National Career Clusters. The career clusters are groupings of common occupations, and FCS programs connect to numerous career clusters including: Education and Training; Hospitality and Tourism; Human Services. While FCS programs connect to specific career clusters, there are opportunities for FCS programming in all clusters because there is focus on developing essential life skills e.g. management of resources, interpersonal communication, and decision making. Programs utilising POS have opportunities to promote the value of the FCS curriculum which results in the sustainability of local programs. POS have many benefits: promoting postsecondary programs and career opportunities in FCS; offering appropriate certifications and licensures; teaching FCS content in coherent sequence that builds a foundation of knowledge and skills; highlighting technical knowledge and skills, e.g. parenting, culinary arts, human growth and development, that are unique to FCS; enhancing essential life skills necessary for college and career success. FCS Programs embracing POS have been successful in promoting and growing their programs, ensuring that FCS Programs are making valuable educational contributions and thereby sustaining the local program.

### Empowering families to build sustainable futures with online financial education in Spanish and English

poster board ID 656-3-40

Country	United States
Lead author	<b>Patti Wooten Swanson</b> (University of California Cooperative Extension)
Co-author	Karen Varcoe (University of California Cooperative Extension)

In today's challenging and rapidly changing economic environment, all families – particularly those with limited resources – need the financial knowledge and skills necessary for maintaining family self-sufficiency and establishing long-term financial security. The purpose of this presentation is to introduce two online, bilingual (English and Spanish) financial literacy programs, one for teens and young adults, the other for limited resource families – developed by the University of California Cooperative Extension. Both programs are research-based, field-tested and available online at no cost to educators and clients around the world. Both can be accessed independently by individuals or used in group settings and classes. Money Talks for Teens (MT), winner of three national consumer education awards in the US, addresses what and how teens said they want to learn about money. To date, we have received password requests (no cost) from educators in 155 countries and territories, including the US, Spain, Mexico, Turkey, Argentina, Colombia, Poland, Canada, Venezuela and Chile. Program topics include money personalities, budgeting, spending, savings, comparison shopping, eating healthy on a budget, car buying, banking, credit, identity theft, looking for a job, and how to be successful on the job. Comprised of fun and interactive teen guides, leader's guides, website and videos, teens can explore, learn and apply valuable financial life skills. The programs have been successfully implemented in a variety of settings, including schools, after-school programs, the military, juvenile justice programs, migrant education and faith communities. Low-income, limited resource adults using the Making Every Dollar Count (MEDC) program learn to take control of their finances by setting goals, distinguishing between needs and wants, developing and using a budget, stretching their dollars with community resources, paying bills on time, building or re-building good credit and saving money on food. Low-literacy adults have the option of listening to the lessons in either English or Spanish while they follow along online. Brief, lively videos of individuals and families explaining how they have taken control of their finances and 'made their money work for them' illustrate the concepts. MEDC has been utilised in educational programs offered by community-based organisations, parent programs at schools, public libraries, drug and alcohol rehabilitation programs, work training programs, and with prison inmates. Both the Money Talks for Teens and Making Every Dollar Count financial literacy programs include outcome-based assessment tools focused on behaviour change. University experts professionally translated the Spanish-language materials. (Money Talks for Teens: <http://moneytalks4teens.ucdavis.edu/> and Making Every Dollar Count: <http://makingeverydollarcoun.ucr.edu/english/index.htm>)



### Effects of the medium-chain triglyceride ingestion after moderate exercise on energy metabolism

poster board ID 663-3-41

Country	Japan
Lead author	<b>Naoko Komenami</b> (Kyoto Women's University)
Co-authors	Shima Kimigafukuro (Kyoto Women's University) Natsuko Yukawa (Kyoto University of Education) Kayoko Yamazaki (Kyoto Women's University) Mayuko Kuwabara (Kyoto Women's University)

#### Aim

The increase in metabolic syndrome has been a serious health problem in Japan. It is primarily caused by the energy intake exceeding the expenditure. It has been known that the energy metabolism and storage in the body are related with the composition of macronutrients in diet; the intake of high fat food results in low diet-induced thermogenesis (DIT). Medium-chain triglyceride (MCT) composed of saturated fatty acids with 8 and 10 carbon atoms are different from long-chain triglyceride (LCT) in terms of digestion, absorption and metabolism. Previous reports indicated that the consumption of the diet rich in MCT suppresses the accumulation of the body fat due to increased energy expenditure in both human and rat. Although eating MCT rich diets could be a useful dietary treatment for metabolic syndrome and dyslipidemia, the difference in the energy produced by DIT between MCT and LCT is rather small at resting. Here, the effect of exercise on the energy expenditure was examined upon MCT ingestion since it is well known that exercise effectively augments the rate of energy expenditure.

#### Methods

Eleven healthy women were participated in four experimental groups with and without MCT diet (MCFA, LCFA) under the conditions (rest, exercise). We performed a double-blind dietary intervention study with a crossover design. The high fat test meals contained approximately 670 kcal (PFC: 15, 60, 25%), composing 21.0g MCT and 23.1g LCT in MCFA, and 1.3g MCT and 44.0g LCT in LCFA. In the exercise groups, moderate exercise of 65% VO<sub>2</sub> max was conducted for 30 min using a bicycle ergometer before eating. Metabolic heat production and respiratory quotient (RQ) were measured before exercise or at rest (baseline), and after eating for 360 min in a room controlled at 25°C. DIT was calculated from baseline to increased metabolic heat production for 360 min.

#### Results

The metabolic heat production for 360 min after eating increased from baseline in all four groups. The metabolic heat production in MCFA- and LCFA-Exercise groups were significantly higher than those in MCFA- and LCFA-Rest groups ( $p < 0.05$ ). RQ were significantly lower in the two exercise groups than those in the two rest groups. Among the exercise groups, MCFA-Exercise group showed lower RQ than LCFA-Exercise ( $p < 0.05$ ). DIT was also significantly greater in MCFA-Exercise group than the others ( $p < 0.05$ ).

#### Conclusion

These results suggest that, compared with LCT ingestion, MCT ingestion after moderate exercise increased the rate of fat utilisation and DIT.

### A study on acceptability of jute fabrics for diversified household textiles

poster board ID 665-3-42

Country	India
Lead author	<b>Deepali Singhee</b> (JD Birla Institute)
Co-author	Saadgi Choudhury (JD Birla Institute)

#### Aim

Jute, known as the golden fibre, once dominated the world market as a packing material. However, with the introduction of the more user-friendly synthetic fibres, the demand for jute declined significantly. Today jute, as a fibre with several advantageous properties, can be popularised as consumers are demanding eco-friendly and natural products. The fibre can thus be promoted through diversification and value addition of products made from it. The current research work is an endeavour to support the diversification initiative of the jute industry.

#### Method

Diverse products in the form of table mats and table runners, that require less fabric than the full-length table cloths, were made from jute decorative fabrics. Value was added using printing (block and screen) and embroidery (appliqué) techniques to improve consumer acceptability. The edges of the mats and runners were finished with either a full-length facing (backing) or a short border on the edge. The raw edges in some mats were protected through lamination or jacketing (encasing in a plastic film). A detailed consumer survey was undertaken through a questionnaire prepared for the purpose to explain consumer behavior, opinion and preference for the products developed. The data with respect to the consumer responses were statistically analysed using ANOVA test wherever applicable.

#### Results

Eighty-two per cent of respondents knew about the availability of traditional and more popular products made from jute. Statistically significant difference was found between the acceptability of the different finishing techniques used for the table mats. The single-layered laminated table mats were the most popular followed by table mats finished with a border on the edges. The responses regarding the ornamentation techniques used for the table mats and table runners were interestingly found to be the same and among the two different printing techniques used, block and screen, the respondents preferred the latter. Respondents also favoured the latticed or network pattern of appliqué design for both table mats and table runners. Fifty-seven per cent of respondents preferred printing to appliqué for table mats while 61 per cent preferred printing to appliqué for table runners. Respondents preferred table mats only along with matching table mats.

#### Conclusion

Table mats made from jute-based decorative fabrics can compete with those made from other fibres. Table runners made from jute fabrics were acceptable to respondents and were found to be better than full-length table cloths.

**China’s changing historical cities – Spatial variation of Luoyang New District**

poster board ID 103-4-1

Country	Japan
Lead author	<b>Feixue Wang</b> (Nara Women’s University)
Co-author	Nayama Toru

In recent years, many of China’s historical cities have been undergoing a rapid transformation due to the expansion of the urban economy and rapid population concentration. Luoyang, one of the seven famous ancient cities in China and also the centre of politics and economy in old times, once flourished as the capital of nine dynasties in China’s history. Now as the famous historical and cultural city, it is also well known as an international tourist city. In the modern Luoyang city, great changes have been taking place in the past 20 years. Due to the expansion of the urban population, there are new administrative districts in the suburbs and the newly developed urban area has been built rapidly south of the Luo River. Plants in the old city of Luoyang have been transferred frequently, and each building lot has had its old functions replaced by new ones. So the city of Luoyang has appeared with a spatial structure full of the new features. In this study, we focused on urban planning of Luoyang city since 1949 and probed into the themes of how to protect and rebuild the old city, how to set up new districts in the suburbs in recent years from a perspective of sustainable development. The survey was made in August of 2010, using the method of analysis of historical data and literature related to post-war planning of Luoyang city. The characteristics of each period was identified the characteristics, and the differences in each period were compared. Based on the field survey and interview survey, we then tried to reveal the reality through comparing the changes over time, as shown in the maps, of newly developed urban areas.

**Food safety in Brazil and the path for the construction and implementation of the food and nutritional safety system**

poster board ID 127-4-2

Country	Brazil
Lead author	<b>Sande d’Avila</b> (Federal University of Ceara)

Food safety has been discussed around the world, constituting an issue of relevant importance for sustainability and quality of life to human beings on the planet. This paper’s aim is to present a history of food safety in Brazil and the long path for the realisation of feeding as a human right. Some statistical data about unsafe food in Brazil will be presented to contextualise the ways for the consolidation of the Food and Nutritional Safety System in the country. The Food Safety Law establishes systems, the definitions, principles, directions, aims and composition by which the public power with the participation of the organised civil society, will formulate and settle policies, plans, programs and actions to assure the human right to adequate feeding. Food and nutritional safety consists of the regular and permanent access for everybody to good food, in sufficient amounts, without compromising the access to other essential needs, having as background health promoting feeding practices that respect the cultural diversity and are environmentally, economically and socially sustainable. The National Research by Household Samples done in 2004 about food safety, in partnership with the Ministry of Social Development and Starvation Combat, produced for the first time information about the household food safety conditions in a national perspective. The Brazilian Scale of Unsafe Food, by which households may be classified into four categories: food safety, slightly unsafe food , moderately unsafe food and seriously unsafe food. The data presented and analysed in this paper shows that there is still a long way to go so that a greater number of people in Brazil and in the world get out of the condition of unsafe food, that is not restricted to the famine problem. Considering starvation as a high magnitude world problem, it is worth reinforcing that its struggle must be oriented in the sense of promoting rights, by which we mean to raise access conditions, especially of the less favoured, to food, housing, basic sanitation, health care, education, wage generation etc. Many actions must be directed so that the population has a high quality educational system which allows the dignified exercise of a job and of citizenship.

### Effects of eating vegetables before carbohydrate on daily glycaemic changes assessed using continuous glucose monitoring in Japanese patients with diabetes

poster board ID 191-4-3

Country	Japan
Lead author	<b>Saeko Imai</b> (Osaka Prefecture University)
Co-authors	Ikuko Takeyama (Osaka Prefecture University) Mikuko Matsuda (Kajiyama Clinic) Onkoo Rhee (Nagoya Keizai University) Shizuo Kajiyama (Kyoto Prefectural University of Medicine)

#### Aim

This study was performed to examine the effects of eating vegetables before carbohydrate on daily glycaemic changes using continuous glucose monitoring (CGM) in Japanese patients with diabetes.

#### Methods

Twenty patients with diabetes from Kajiyama Clinic in Kyoto were enrolled between April and September 2011. The eligibility criteria included the following: 1. 20–80 years of age; 2. type 2 diabetes with use of oral hypoglycemic agents (OHA) or insulin for at least one year; 3. HbA1c between 5.5% and 8.9%; 4. a stable insulin or OHA regimen for the prior two months; and 5. a stable dose of antihypertensive or lipid-lowering drugs for 1 month. Major exclusion criteria included the following: 1. severe diabetic complications (e.g., diabetic foot or severe diabetic retinopathy); 2. corticosteroid used in the previous 3 months; 3. liver disease; 4. renal insufficiency; and 5. other medical problems that affected study results or trial participation. Before participation in the study, all patients signed a written informed consent. The study protocol and consent forms were approved by the Ethics Committee of the School of Comprehensive Rehabilitation at Osaka Prefecture University. CGM was performed for four days (72 hours), and a half of the participants consumed each test meal of eating vegetables before carbohydrate for one day and for another day they consumed each test meal of eating vegetables after carbohydrate. The rest of the patients consumed each test meal of eating order of vice versa. The dietitian consulted and explained the test meals for each participant. The test meals consist of 1000 to 1800 kcal per day with rice/bread, meat/fish, and vegetables, such as tomatoes, spinach, cabbage, and broccoli. The average 24-h blood glucose level, SD of the 24-h blood glucose level, 24-h glycaemic fluctuation range, mean amplitude of glycemic excursions (MAGE), and hyperglycaemic and hypoglycaemic time periods were compared between two different days.

#### Results

When patients consumed eating vegetables before carbohydrate, the average 24-h blood glucose level, SD of the 24-h blood glucose level, 24-h glycaemic fluctuation range, MAGE, and hyperglycemic time decreased compared with these parameters when they ate vegetables after carbohydrate.

#### Conclusion

Eating vegetables before carbohydrate decreased the average glycaemic levels and improved 24-h glycaemic fluctuation, including postprandial hyperglycaemia compared with these parameters of eating vegetables after carbohydrate in Japanese patients with diabetes. (This work was supported by a Grants-in Aid for Scientific Research and Osaka Prefecture University.)

### The role of home management education in the sustainable development: Students' nutritional concerns

poster board ID 210-4-4

Country	Egypt
Lead author	<b>Mona Sharaf Abdelgalil</b> (Alexandria University)

The objective of this study is to assess the role of home management courses in raising students' perception level on food consumption and eating behaviour using a self-administered food frequency questionnaire during the first semester 2010 using qualitative method. Fifty-five students, from grade one to grade four represent all students at the department of home economics, their ages ranging between 17 and 22 years (average 19.4182 + 1.3429), at the faculty of Specific Education participated in this study. Questions about the number of servings of milk products, vegetables and fruits, and snack foods/beverages was coded then calculated. Statistical program SPSS (version 10.0) used to assess differences in food consumption according to grade level using descriptive analysis, paired sample test and Pearson correlation. Results showed that 58.2% of students reported consuming vegetables other than salad and potatoes, 83.63% of students having no fluid milk in the previous seven days or more, use alternatives of milk products; 16.4% reported consuming fast food, 85.5% of students reporting that they hadn't previously learned from their parents how to prepare nutritious food with inexpensive basic ingredients. Food management and menu planning course facilities are examined to determine their influence on eating behaviour. Due to small numbers of students, they collapsed into two categories – beginners and advanced. Significance differences were noticed between beginners and advanced categories; in total, common dietary practices included: snacking on energy-dense foods; meal skipping; irregular meals; wide use of fast food; low consumption of fruit, vegetables and dairy products. A positive and negative correlation was noticed between grade levels, also between beginners and advanced group. Home management was the source of food management and menu planning information. The students perceived a number of barriers that prevent them from eating a healthy diet. In many cases the faculty environment depresses healthy food behaviour due to many factors e.g. the limited availability of healthy options, the absence of limited time for eating, and limited selection of food available as snacks. Research highlighted the importance of the home economics and home management education in educating adolescents in diverse domains of study about healthy eating and eating practices, particularly within home economics curriculum at the faculty and theoretical faculties. Despite this, nutritional knowledge alone was not sufficient to alter behaviour. The study recommends that home management should be a compulsory subject, combining nutritional education with practical cooking skills, to sustain life-long nutritional practices.

### The real life of children away from home in inner Mongolia in China

poster board ID 226-4-5

Country	Japan
Lead author	<b>Ya Ru</b> (Nara Women's University)
Co-authors	Nakayama Toru (Nara Women's University) Odon Gerel (Inner Mongolia Women's Gadres School, China)

Inner Mongolia is an autonomous region of Mongolia, and a place where the main residents are Mongolian with long history and Mongolian culture. In recent years, the live situation in Mongolia had big changes with the urbanisation, and it is obvious that the living standard has improved. On the other hand, the Mongolian inherent culture and life are becoming weak, so it's urgent to work out some proposals for inheriting and developing Mongolian culture and to make it adapt to modern society. Therefore, I am trying to grasp the reality of the first steps of these living changes. In this study, the following two things are very important. By the streamlining of the local schools, children leave from grasslands and migrate to the towns in Xilinguole in order to accept education. Even in the areas where the local schools are still not unified or reorganised, children are commuting even if the school is far away from home, in order to look for good education and an environment in which the children can learn Chinese and English. Children leave their parents, and live with their grandparents or relatives, or live in the dormitory, which is very different from the past life on grassland. It's very difficult for these children to inherit the traditional culture from their parents. The grandparents, mothers and relatives must go to towns to bring up children, which results in lack of people on the land and increasing living costs. Furthermore, the children's play may be changed too. In this study, the questionnaire and listening were used. The people live in Xilinguole still with rich traditional cultures were regarded as respondents, and most of the respondents were Mongolian. From the view of living science, some subjects are proposed by families to schools or administrations on the basis of five areas of the lives of children who are away from home.

### Preferred lighting to increase visual palatability of food dishes for the elderly

poster board ID 235-4-6

Country	Japan
Lead author	<b>Shino Okuda</b> (Doshisha Women's College of Liberal Arts)
Co-authors	Katsunori Okajima (Yokohama National University) Arce-Lopera Carlos (Yokohama National University)

#### Aim

Poor appetite in elderly people is considered an important ageing problem. The good appearance of food dishes may contribute to increase their appetite. However, because colour vision changes with age, the elderly do not necessarily perceive the dishes as visually palatable as the young people do. The appearance of food dishes is determined by several factors, such as food colour, arrangement and lighting. This study aims to reveal the preferred lighting conditions on a dining table to increase the palatability of food dishes for elderly people.

#### Method

We conducted a sensory experiment on the appearance of dishes by changing their lighting conditions. We prepared 12 kinds of food dishes: sashimi (raw fish); tempura (Japanese fritter); teriyaki fish; Japanese omelette; hamburger steak; beef steak; green pepper steak; shrimp in chili sauce; salad, roll bread, fried rice; and Mont-Blanc cake, and made true-colour digital images of the dishes using a 2-D colour analyser under six kinds of light sources. The illuminance was 200 lx on top of the dining table for all lighting conditions. The digital images were displayed on a calibrated monitor with the same chromaticity values as the real objects. Forty subjects observed each image of the dishes and evaluated its 'visual palatability' according to a six-step categorical scale, 'very good', 'good', 'slightly good', 'slightly bad', 'bad' and 'very bad'. Subsequently, using Thurstone's paired comparison method, observers determined their preferred 'visual palatability' between two images under different lighting conditions. Observers were all female, half in their twenties and the other half with ages ranging from sixty to eighty years old.

#### Results and discussion

Results of the categorical evaluation show that visual palatability of sashimi, salad, shrimp in chili sauce, and beef steak are significantly lower in the elderly in comparison with the young under the standard illuminant D65 condition. On the other hand, results of the paired comparison evaluation show that visual palatability of shrimp in chili sauce and beef steak are significantly high in the elderly under LED and halogen lamps. These results indicate that LED and halogen lights can increase palatability for the elderly of red or yellow-red meat dishes and of single-colour Chinese dishes. Hence, a multi-lamp lighting system which allows the selection of appropriate light depending on the dish served can be useful for increasing the appetite of the elderly. (This study was supported by Research Grants in Doshisha Women's College of Liberal Arts, 2011–2012.)

## A study of behaviour characteristics of stroller users and their awareness of the situation in public transportation

poster board ID 258-4-7

Country	Japan
Lead author	<b>Yukiko Nishimoto</b> (Kobe Women's University)
Co-authors	Ueno Katsuyo (Kobe Women's University) Kajiki Noriko (Kobe Women's University)

In Japan, which is facing an ageing population with low-birth rates, it is important to prepare an environment where pregnant women, infants, child-rearing parents and children can take part in going-out activity with safety, security and comfort in order to support child-rearing parents' participation in society and also to put the brakes on low-birth rates. As an example, I will take up stroller use on the public transportation in this research. Over recent years, the accessibility of the transportation system mainly at and around railway stations has gradually been enhanced by the development of building access law, transportation accessibility law, new accessibility law, etc and the number of people who use strollers accompanied by children on the public transportation has been on a rapid increase. Accordingly, all sorts of accidents and trouble related to stroller use have been occurring such as a stroller getting caught in train doors and a folded stroller falling and hitting a passenger on a crowded train. Therefore, this research aims to survey and analyse the reality of stroller use and awareness of stroller users on the public transportation and clarify issues using strollers. As a result of conducting an observation of stroller users on JR Kobe Line, dangerous behavioural characteristics were observed in stroller users' getting on and off the train and going up and down the stairs etc. Also, as a result of a questionnaire survey (the number of validly-answered questionnaires: 698) aimed at guardians of infants, the presence of 'psychological barriers' came to light that are imposed upon stroller users by those who do not use strollers, in addition to 'physical barriers' such as steps and stairs.

## Cooking knowledge and skills of college students in Japan

poster board ID 260-4-8

Country	Japan
Lead author	<b>Madoka Hirashima</b> (Mie University)
Co-authors	Yuka Isobe (Mie University) Hiroko Nagano (Gifu University) Mitsuyo Hori (Gifu City Women's College)

### Aim

Many kinds of processed foods are available in Japan, and opportunities for cooking at home have decreased. Consequently, people who have been out of health have increased because they are less conscious of what they are eating. It was found that college students with high culinary skills tended to eat well-balanced meals; having high culinary skills correlates to purchasing food ingredients for cooking, to preparing well-balanced meals for oneself, and as a result, in making healthier food choices. Therefore, a study was conducted on the cooking knowledge and skills of college students.

### Methods

Surveys were taken every April (beginning of the school year) from 2007 to 2010 to investigate the cooking knowledge and skills of 1039 first-year students (age 18–20) in college and vocational college. The respondents, 187 males (18.3%) and 837 females (81.7%) were categorised into several groups e.g. living at home (78.6%) or living away from home (21.4%), likes cooking (55.0%), dislikes cooking (5.0%) or indifferent (40.0%). The results were statistically compared by chi-square test.

### Results

It was found that the percentages of students who cooked every day, 3–5 times a week, 1–2 times a week were 15.9%, 14.9%, 27.3%, respectively, and 41.9% students rarely cooked. Among students commuting from home, 50.0% of them rarely cooked, while 11.7% rarely cooked among the students who were boarding ( $p < 0.01$ ). The reason for so many students not cooking was that many were living at home, meaning their meals were prepared by their parents. Furthermore, students who liked cooking showed greater tendency to cook than those who disliked cooking ( $p < 0.01$ ). In addition, 29.6% of the students replied as having their own specialty dish. Students who liked cooking tended to have their own specialty dish in comparison with those who disliked cooking ( $p < 0.01$ ). Their specialties were omelet with fried rice, fried rice, curry and rice, hamburger steak and pasta. They were not traditional Japanese dishes and easy to cook. Although the percentage of students who had their own specialty dish was low, they cooked more frequently compared with those who did not have their own specialty dish ( $p < 0.01$ ).

### Conclusion

From these results, it can be considered that becoming independent and enjoying cooking are important in students cooking regularly. Moreover, to like cooking leads to have one's own specialty dish.

### On examining exams: A quantitative analysis of exam arrangements in home economics in Norwegian higher education

poster board ID 264-4-9

Country	Norway
Lead author	<b>Sigrunn Hernes</b> (University of Agder)

Higher education courses in home economics encompass theoretical knowledge, practical skills and the ability to teach this knowledge and these skills (didactics). All these factors have to be measured through exams. In the survey study reported here students evaluated their exams in home economics at two higher education institutions in Norway. At one institution the exam was organised as a combination of group and individual performance. Group performance was tested in a theoretical paper that comprised 25 per cent of the entire grade. Subsequently, individual students selected a menu and practised their skills for 10 minutes. At the other institution, the exam was entirely individual and consisted of an oral presentation and practical work lasting 20 minutes. At both institutions the students demonstrated their theoretical knowledge and practical skills for an external examiner and their own teachers and thereby their ability to teach home economics. The study investigated students' evaluation of exam arrangements with regard to three dependent variables: theoretical knowledge, practical skills and didactics. The students reported greatest satisfaction with the exams in relation to didactics, where the mean score was 3.22 on a 0–4 point scale. With regard to theoretical knowledge and practical skills, the scores at the two institutions were 2.57 and 2.97 respectively on the same 0–4 point scale. The variables for theoretical knowledge and practical skills were found to be highly correlated (0.461) while there was no correlation (0.064) between theory and didactics. Regression analyses revealed that as far as theoretical knowledge was concerned, there were significant differences between the two exam approaches. The wholly individual part of the exam gave the highest scores on this variable. In practical skills and didactics, the independent variables related to exam approach, gender and age were not significant in this study. The conclusion of this study is that the students at both institutions were satisfied with the exam arrangements on the three dimensions included in the study. The arrangement for demonstrating didactic competence for external examiners and teachers was considered to be good. The difference between the two institutions with regard to theoretical knowledge can be explained by the difference between group and individual exams.

### Experimental practice of 'Food partnership' in Japan

poster board ID 271-4-10

Country	Japan
Lead author	<b>Yoko Suzuki</b> (Nara University of Education)

Food Partnership is the training session for primary school teachers by a nutrition or home economics teacher. There have been many problems with Japanese children's eating habits over the past 25 years. For example, eating only favourite foods, not eating breakfast and increasingly overweight children. In order to solve such problems, the Japanese government enacted a law about eating in 2005. Its name is 'The Basic Law on Shokuiku'. 'Shokuiku' means food and nutrition education. As for the target of food and nutrition education, not only children but also adults are targeted. Moreover, not only consumers but also producers of food. Food and nutrition education was positioned as important by the law and learning in a school was encouraged. However, the necessity for lessons isn't fully understood. The contents of lessons and a method of instruction need improvement. Therefore, Food Partnership was devised in order to deepen a teacher's understanding for food and nutrition education, to obtain clear knowledge of food and to improve cooking technology. The contents of Food Partnership are mainly cooking training. It is because cooking technology is indispensable to the practical use of the knowledge of nutrition or food. Although it is also possible to purchase cooked food, food cooked by oneself is healthier and safer. The system of Food Partnership has been in the UK and the system of the UK was referenced in this study. In advancing this research, I organised the team which consists of a nutrition teacher and home economics teachers. The contents of the training session were discussed at length by the team members, and the contents were tried in three schools. At that time, the questionnaire about the necessity of the training session and the contents was given out to the primary teacher who participated. About the necessity for the training session, 'definitely required' was 27%, 'somewhat required' was 70% and 'not required at all' was 3%. 'Contents which can be immediately used for a lesson in a classroom' was desired most. 'Contents which took in the viewpoint of culture' was low compared with 'Contents required for the entire cooking lesson (how to use kitchen knife etc.)' and 'Contents which raises a teacher's knowledge (scientific understanding of food etc.)'. The textbook for the training session was created based on the results. (This work was supported by JSPS KAKENHI 21530932.)

### The effect of replacing gelatine with mucilage from opuntia

poster board ID 273-4-11

Country	South Africa
Lead author	<b>Carina Bothma</b> (University of the Free State)
Co-authors	Pabalelo Mahupunyane (University of the Free State) Maryna De Wit (University of the Free State) Arnold Hugo (University of the Free State)

#### Aim

Cactus pear fruit (*Opuntia ficus-indica*) is an important food source and may be used in a wide range of products, such as juices, marmalades, gels and jams, canned and frozen fruit. The Cactaceae family, of which *O. ficus-indica* is part, is characterised by the production of mucilage, a complex polysaccharide carbohydrate with a highly branched structure, called a hydrocolloid. Hydrocolloids are water-soluble dietary fibre that can be used as a healthy additive for commercial food products. The aim of this study was to determine the acceptability of 'Turkish delight', made with various concentrations of mucilage, by using sensory and physical analysis.

#### Method

'Turkish delight' was made with gelatine replacements of 0, 25, 50, 75 and 100% mucilage. A 100-member consumer panel evaluated three experimental variants (0, 25% and 50%), as well as a commercial brand, by using a 9-point hedonic scale, for taste, texture, overall liking and appearance. Analysis of variance (ANOVA) was used to determine the influence of the mucilage replacement on these sensory attributes. Physical analysis included line spread test, viscosity, percentage sag, and penetrometer measurements, using flat en cone-shaped attachments.

#### Results

The commercial brand scored the highest values for general preference, taste, texture and appearance and was significantly preferred ( $p < 0.001$ ) over the three experimental samples. The gelatine and two mucilage containing samples did not differ significantly for any of the sensory attributes. Viscosity decreased significantly from the gelatine sample to the 25%, 50% and 100% mucilage samples, with the 75% mucilage sample having the lowest viscosity. Penetrometer measurements showed that the 50% mucilage sample was significantly more tender than the gelatine and 0.25% samples. The percentage sag showed that the 75% and 100% mucilage samples were significantly more tender than the gelatine, 25% and 50% mucilage samples.

#### Conclusion

The consumers preferred 'Turkish delight' with a very stiff texture, like those of commercial brands. The addition of mucilage led to a significant decrease in viscosity. At the higher mucilage concentrations of 75% and 100%, the gel became significantly more tender and could not be unmoulded. However, the 25% and 50% experimental variants did not differ significantly from the gelatine-containing control for the sensory attributes.

### Three-dimensional curved surface shapes varied by body shapes and skirt materials and flare volumes to create patterns and simulations of skirts in order to create them in virtual reality (part 2): 3D curved shape of a range of flared skirts

poster board ID 281-4-12

Country	Japan
Lead author	<b>Tomoe Masuda</b> (Mie University)
Co-authors	Hiroko Yokura (Shiga University) Minami Wada (Mie University)

In Part 2, the 3D curved surface shapes of skirts and bodies were extracted with the Hamamatsu Photonics-Body Line Scanner. We scanned 18 individual flared skirts – three magnitudes of flare × six materials on each the three model body shapes (20s, 40s and 70s) giving us a total of 54 scans. We were then able to display them in virtual simulation. As a reference, a zero flared tight skirt for each of the three models was made in the six different materials. The six types of material were selected to be as diverse as possible from the ten materials used to make flared skirts worn in a preliminary experiment. Three varieties of natural fiber consisting of two types of 100 per cent cotton and one type of 100 per cent wool were selected in addition to three types of 100 per cent polyester synthetic fibre. All the fabrics selected were off-white. Three hundred reflective landmarks for the scanner to take 3D measurements were set at the intersections of nine horizontal and forty (twenty on the upper area) vertical lines created on each flared skirt. The 3D coordinates (x, y, z) of each of these 300 points on each of the 18 types of static, worn, flared skirt on each model were measured by the Body Line Scanner. The 3D curved surface shapes of the body from waist to crotch and the flared skirt were extracted in individual horizontal cross-sections following the shape of the standard measurement lines and the size of the angles between the triangular mesh vertices and the faces on the skirt surface. Finally, we displayed the 3D skirts onscreen and collected responses and impressions of 'skirt flare image' from Japanese women using the five grade scales. We also investigated the relationship between the physical properties of the curved surface shapes and perceptions and impressions of the 18 kinds of flare skirt according to the materials and body shape from waist to crotch. We were successful in obtaining the key data to construct and configure a virtual static flared skirt displayed in precise accordance with the materials used and body shape from waist to crotch.

### Dual mode diffusion and sorption of sodium chloride in cooked potato under cooking conditions

poster board ID 288-4-13

Country	Japan
Lead author	<b>Hiroko Hashiba</b> (Tokyo Seiei College)
Co-author	Hiroko Hashiba (Tokyo Seiei College)

Despite the importance in the practical cooking process, the diffusion and sorption behaviours of NaCl in various foodstuffs have been left unexplained. In our series of studies e.g. in radish, egg white and pork, it was found that the Fick's diffusion coefficients,  $D$ , show strong dependences on the concentration in the substrate and that the isotherms show slight curvatures. The present study reports the variations of  $D$  of NaCl and the sorption isotherms for pre-cooked potato. These variations were quantitatively explained by a dual mode diffusion and sorption theory. The concentration profile of one dimensional diffusion of NaCl was measured by FRITRUC (Foodstuff Rod in Thin Rubber Casing) method.  $D$  at respective concentrations were estimated from the profile by Matano's method. The dual mode diffusion and sorption theory presented by one of the present authors in 1974 was applied to estimate appropriate parameters. The sorption isotherms were measured by determining NaCl concentration in the substrate immersed in NaCl solutions. The maximum showing variations of  $D$  at 30°C and 98°C were interpreted quantitatively with two thermodynamic diffusion coefficients,  $DT(p)$  and  $DT(L)$ , an equilibrium parameter,  $\alpha$ , and the concentration of  $L$  sites. All sorption isotherms for the three substrates were found to show slightly convex upward curvature. The water contents of cooked potato, 80.5% were divided into liquid water imbibed and the substrate swelling water. The assumptions of these regions reasonably explained the isotherms. Thus, here, we show a unified interpretation of the diffusion and sorption of NaCl in cooked potato as those in radish, egg white and pork meat.

### Issues for sustainable dwelling from the perspective of changes in the lodging style of families in a historic district: The case of northern Naramachi, Nara city, Japan

poster board ID 312-4-14

Country	Japan
Lead author	<b>Yui Makino</b> (Nara Women's University)
Co-author	Noriko Imai (Nara Women's University)

The northern Naramachi district, located in the north-eastern part of the old city of Nara, has a long history dating back to ancient times. The district is dotted with traditional town houses, and is the dwelling district adjacent to Todai-ji, a world heritage site. In the year 2000, the Imai Research Group of Nara Women's University administered a questionnaire survey in this district. It was found that the main lodging style of families up to that time was the Japanese traditional multigenerational household, but recently there is a trend toward children living away from their parents when they get married, and ageing is occurring in the dwelling district overall. Ten years after the 2000 survey, there is marked dilapidation of buildings and conversion to vacant lots in the area, and thus this paper will determine what effects changes in the dwelling style of families have on changes in buildings, and will examine the sustainability of historic districts. In 2000 we conducted an appearance survey of buildings facing the road, focusing on 225 buildings in six districts where there is a comparatively high rate of existing traditional buildings. Furthermore, in order to examine the relationship between changes in the lodging style of families due to living separately from children and the sustainability to settlement, a landscape survey was conducted in June 2011 to determine how building appearance had changed since the 2000 survey, and the relationship with the family type and size was analysed. The cause of the decrease in A level buildings which best retain their traditional appearance was determined to be closely related to changes in family relationships and lodging styles. At present it is impossible for households with one senior, or an elderly married couple, living alone away from their children to preserve A level buildings. Previously, families lived together over multiple generations, and continued to live in the traditional buildings, but as residents live separately from the generation of their children, they tend to become elderly and live alone. This results in poor maintenance and preservation of the precious traditional dwellings in this district, and the number of traditional dwellings declines. In order to achieve the happiness and sustainability of families in historic districts, it will be necessary, for example, to develop living related facilities for young married couples, such as child-rearing support to make child-rearing easier, so that new residents will move into the area.



### A study on improvement of antioxidant activity for cuisine menu by using chemiluminescence, oxygen radical absorbance capacity (ORAC) and electron spin resonance (ESR) methods

poster board ID 330-4-15

Country	Japan
Lead author	<b>Keiko Nagao</b> (Tokyo Kasei University)
Co-authors	Kazuki Harada (National Fisheries University) Kumi Sato (Tokyo Kasei University) Rie Awatsuhara (Kanazawa Gakuin College) Nobuyuki Endo (The Wakasa Wan Energy Research Centre)

Japanese and Western cuisine menus were designated with higher antioxidant activity than an ordinary cuisine menu by changing the cuisine materials and methods. The antioxidant activities were measured by using the chemiluminescence, oxygen radical absorbance capacity (ORAC) and electron spin resonance (ESR) methods. We can measure the peroxy radical scavenging activity by using the chemiluminescence and ORAC methods. We can measure the hydroxyl radical scavenging and super oxide dismutase (SOD) activities by using ESR method. As the Japanese cuisine sample menu, we offered the menu consisting of: (main, entree) Japanese chicken meatloaf with burned shishito peppers; (side dishes) fried burdock and boiled spinach; (soup) miso soup; (staple item) rice. While the ordinary menu consisted of boiled Japanese meat loaf, fried burdock with immersion pre-treatment, boiled spinach with soy sauce, miso soup made with red miso paste and bonito soup stock, and white rice, we developed the menu with higher antioxidant activity i.e. Japanese meat loaf heated by microwave, fried burdock without immersion pre-treatment, boiled spinach with tofu, miso soup made with miso paste, bonito soup stock and eggplant, and brown rice. As the total calculated antioxidant activity of water-extracted samples, the ordinary and antioxidant menus indicated 1.20% and 1.11% of IC50 value for peroxy radical scavenging activity by chemiluminescence method, 558 and 692  $\mu\text{mol}$  trolox equivalent (TE)/100g wet weight of ORAC value for peroxy radical eliminating activity by ORAC method, 138 and 187  $\text{mmol}$  TE/100g wet weight by hydroxyl radical scavenging activity by ESR method and 8732 and 11,193 unit/100g wet weight for SOD activity by ESR method, respectively. On the other hand, for actual measurement, the ordinary and antioxidant menus indicated 479 and 662 TE/100g wet weight. Consequently, by measuring antioxidant activity on parts of the menu and the total menu itself, we proved successful in the improvement of antioxidant activity for cuisine menu. (This study was supported in part by the project research proposal of 'Meal design method for new primary prophylaxis against oxidant stress' of Research Institute of Domestic Science, Tokyo Kasei University from 2010 to 2012.)

### Practical conditions for home and consumer studies in Swedish compulsory school: A survey study

poster board ID 354-4-16

Country	Sweden
Lead author	<b>Cecilia Lindblom</b> (Umea University)
Co-authors	Agneta Hornell (Umea University) Inger Arreman Erixon (Umea University) Ingela Bohm (Umea University) Gun Abacka (Umea University)

Home and consumer studies, although a long established mandatory subject for boys and girls in Swedish compulsory school, is still the smallest one with only 118 hours in total over nine years. Research within the area being very scarce, the main aim of the present survey study was to map the fundamental conditions for teaching the subject throughout Sweden, with a view to gaining background knowledge against which to discuss student attainment of syllabus goals. Data was collected through a nationwide online questionnaire addressed to all public, independent and private compulsory schools in Sweden. A total of 1180 schools were contacted across the country, eliciting a response rate of 443 teachers. Questions ranged from details about the teachers themselves and the existence of local syllabi to physical conditions such as access to adequate classrooms and computers. SPSS software was used for analysis and results were presented in three main categories: 1. teacher qualifications; 2. quality of premises and equipment; 3. lesson time/group sizes. The results should be treated with some caution due to the relatively low response rate (37%); on the other hand they cover the whole country and all types of schools and some trends are clearly visible. A staggering majority (95%) of teachers were female. Almost one third (28%) lacked formal education for home and consumer studies. Respondents without an appropriate degree included nursery school teachers, dietitians and systems and business administrators. With regard to classrooms, only 77% of respondents reported access to a fully equipped kitchen with stoves, sinks and work surfaces. Of the remaining quarter, 10% used a regular classroom, and another 5% were obliged to come up with alternative solutions, such as using portable kitchens in regular classrooms, or conducting their lessons in the school restaurant. Lessons varied from 60 minutes to 4.5 hours. At its best, home and consumer studies can provide students with the tools necessary for making informed choices from an environmental, economic and health perspective. However, considering the frequently deficient conditions found in this study, it is relevant to question whether the quality of education is good and equal throughout Sweden. The high percentage of unqualified teachers in public, independent and private schools is worrying, and the lack of adequately equipped classrooms is a cause for even more alarm, since in order for students to reach syllabus goals, a suitable workplace is an absolute prerequisite.

### Development of creativity in fashion education

poster board ID 391-4-17

Country	Japan
Lead author	<b>Yuko Hane</b> (Nagoya Future Culture College)
Co-author	Yulina Hane (Doshisha Women's College of Liberal Art)

#### Aim

The purpose of this research is to establish a new teaching method that will provide students who will be involved in teaching education in the future with skills and knowledge of creating better fashion lifestyles. With the inclusion of fashion trends in fashion education, students will be able to decide what to wear and how to coordinate their clothes according to the various environments.

#### Method

The students of a teacher training college who have majored in home economics were subjected to the research as a research target group to make them aware and understand a) the factors that determine the world's fashion trends and b) that, as background, fashion is strongly influenced by global dynamics. With an understanding of the social and economical situations in which fashion trends occur, better fashion suggestions can be made. In accordance with the universal fashion design process, ordinary elementary and junior high school teachers' lifestyles and social surroundings were analysed, and problem areas were identified. Then, the students were asked to resolve these problem areas and make improvements in order to consider the necessary factors for fashion, and, finally, to design coordinated fashion that include the designs, colours, and textiles.

#### Results

At the beginning of the classes, not many students had given careful thoughts to fashion in their future lives as teachers. However, as they began to psychologically and functionally analyse their lifestyles and to consider the fashion coordinates that would satisfy the required factors, they began to seriously consider what clothes to wear and how to wear them.

#### Conclusion

By understanding the fashion trends that the students saw in magazines or images, or the trends that occurred naturally in their fashion lives, from a global perspective, students were able to analyse the smallest factors required for them to coordinate fashion as future teachers. For teaching, an occupation that requires the highest communication ability, creating one's own fashion coordinates nurtures a rich sense of style. Also, the clothes themselves act as nonverbal communication tools that express more than words.

### Relationship between personal allowance and perception of emotional support of married couples in Korea

poster board ID 395-4-18

Country	Japan
Lead author	<b>Sujin Lee</b> (Hirosaki University)

#### Aim

In our family life, family members share household finances such as earnings and expenses. Thus 'how much money do they share between wife and husband' and 'how much money do they spend respectively' are important points when describing the conjugal relationships. Although personal allowances of wives and husbands shows their standard of living and index of conjugal relationships, it did not get any attention in this research area and the household finances are considered as one unit. In this study I note the personal allowance of wives and husbands and explore the relations between personal allowance and perceptions of emotional support. I have two research questions. One is, 'do all households have personal allowances of wives and husbands?' Another is 'if she/he does have a lot of personal allowance, does he/she feel supported emotionally by their spouse?' Also, I find out what is the mean personal allowance for wife and husband in the conjugal relationships.

#### Method

The data was obtained from the F-GENS Korea Panel Survey of Ochanomizu University. I used 5th year (2007) survey and data from 804 respondents (male 331, female 473). The respondents lived in Seoul and the metropolitan area, ranging in age from 28 to 47 years. Contents of the questionnaire included the income of wife and husband as well as information about children. Examples of items on the survey include the allowance of husband/wife/children and emotional supports (e.g. family behaviours in listening to concerns or worries, attunement to each others' ability or effort). Crosstab and regression models were used to analyse the data.

#### Results

Thirteen per cent of females have no personal allowance and about 6 per cent of males have no personal allowance. Additionally, personal allowance of wives and husbands accounts for 6 per cent and 11 per cent of household finances respectively. Secondly, in the case of wives who have a lot of personal allowance, they feel that their husbands support them emotionally. However, in terms of husbands who have a lot of personal allowance, they felt that this didn't influence their perception of emotional support by spouses. On the other hand, if husbands have a lot of personal allowance, they feel that they don't support their wives emotionally.

#### Conclusion

'Wife has personal allowance' has symbolic significance, in addition to securing financial resources and perception of conjugal relationship is increased positively. Moreover, these results show that nevertheless personal allowance from the family common pot to the husband is taken for granted and the wife's personal allowance is not accepted as a necessity.

### A study on the consciousness of the younger generation of food expenses and nutritional balance in dietary habits

poster board ID 397-4-19

Country	Japan
Lead author	<b>Taeko Shigenobu-Kishimoto</b> (Okayama Prefectural University)
Co-authors	Maiko Tani (Okayama Prefectural University) Miyako Fujishiro (Okayama Prefectural University)

#### Aim

In Japan the number of household members has been getting fewer. According to the census of October 2010, the average number of household members was 2.46 persons. As the daily dietary life is managed by one or two people per family, the use of cooked foods and eating out has sharply increased. This phenomena may be accompanied by the poor cooking techniques, nutritional unbalance, and non-succession of Japanese food culture, especially in young people. In order to study the consciousness of the younger generation in terms of food expenses and nutritional balance in dietary habits, we planned a questionnaire survey of university students' consciousness and a sensory test in hamburgers.

#### Method

We conducted a questionnaire survey of university students' consciousness of dietary habits that focused on food expenses and nutritional balance, and analysed the frequency of self-cooking, the consciousness of food expenses and nutritional balance. Next, we conducted a sensory test regarding the taste, saltiness, oiliness, and appearance of self-made hamburgers compared with commercially cooked hamburgers, and analysed the data using SPSS (17.0).

#### Results

The survey found that gender and family situation influenced the consumption behaviour regarding dietary habits. Many students of one-person households ate only cooked foods that were bought in convenience stores or supermarkets. The average price that was paid for cooked food per each meal was 414.4 yen (US \$5.4). The sensory test showed the high evaluation of self-made hamburgers; in addition the self-made hamburgers were cheaper and produced better nutritional balance than commercially cooked hamburgers.

#### Conclusion

Students regarded a meal consisting of already cooked foods as time-saving but expensive. When they bought cooked foods in convenience stores or supermarkets, they selected fresh foods with good nutritional balance but cooked foods with rice, bread or noodles only. The present study suggests the total food expenses will be very expensive and the nutritional balance will be sub-optimal in one's total lifespan, if one cannot cook their own food and has to eat cooked food, or eat out, daily. This may be associated with lifestyle-related diseases in the future. We discuss how to educate the consumer systematically, in school, with regard to food expenses and nutritional balance in dietary habits.

### Influence of family activities on stimulating children's interest in school subjects

poster board ID 403-4-20

Country	Japan
Lead author	<b>Masako Muro</b> (Sugiyama Jogakuen University)

#### Aim

In Japan, educational expenses account for approximately 30 per cent of the family budget, and the interest in education is high. The purpose of this research was to clarify what kind of family activities stimulated children's interest in school subjects, and prove that their interest was not generated by after-school private lessons or expensive teaching materials.

#### Method

Past research clarified that girls were more easily influenced by the family than boys. Therefore, the survey was delivered to Japanese female university students in 2010–2011 (distributed 200 and collected 196). They were asked what family activities stimulated their interest in school subjects. The subjects were Japanese, mathematics, science, social studies, English, physical education, technical arts, home economics, art, music and calligraphy.

#### Result

About 40 per cent of the students were influenced by family activities. They said that they had come to like the subject related to their parents' hobbies when they joined the same hobbies as their parents'. For example, they said, 'My parents often watch history programs on television and I like history'. Many students who like literature answered that their family members had often read books for them. And most of the books were their parents's books, not newly bought for them, or library books, which means there was no extra expense. And 12 per cent of the students were interested in a subject related to their parents' occupation. Less than 10 per cent of the students answered, 'My parents let me take private lessons'. It was physical education that had affected their interest most. The next was home economics. In Japan only a very few children take private lessons related to home economics.

#### Conclusion

As a conclusion of this research, it can be said that family activities influenced children's interest in school subjects. It was a positive influence on children when parents enjoyed hobbies with their children and conveyed the pleasure of acquiring new knowledge and technique. In addition, even comparing this survey with the survey conducted approximately 20 years ago when the economy was better and people were spending more money on education, the results were the same. Therefore, it can be said that the relationship between family activities and children's interest in school subject is not affected by the economy.

### Retention of taste, nutritional value, and functionality of soybeans using various methods for boiling

poster board ID 404-4-21

Country	Japan
Lead author	<b>Keiko Yoshida</b> (Tsukuba International University)
Co-authors	Kaoru Kumada (Tsukuba International University) Sachie Ibe (Ohyamatofu Co Ltd) Shigeko Tsurushiin (Tokyo Kasei Gakuin University) Yoko Okamoto (Suzugamine Women's College)

#### Aim

Soybeans have excellent nutritional value. In Japan, processed goods made from soybeans (such as tofu, miso, shoyu, and natto) are used extensively. However, the direct use of soybeans as a food has decreased. 'Boiled soybeans' are marketed as canned food and retort pouched food (i.e. aseptic processing), but they are inferior in taste. I believe that if boiled soybeans can be made delicious, nutritious, and superior in functionality, it would lead to the increased use of soy as an ingredient. Boiled soybeans are made using various processes and preservation methods and then examined for taste, nutritional value and functionality. This investigation is carried out to determine the best processing and preservation methods based on the final outcome of the analysis of these three factors.

#### Methods

Eight samples were prepared using different processing and preservation methods. The nutritional value (vitamin B1 content), functionality (angiotensin I converting enzyme inhibitory activity), and preference (color and taste) were examined. Microbiological tests were performed on preserved beans.

#### Results and conclusion

The examination produced the following results. Beans that were boiled at 112°C contained just as much vitamin B1 as those boiled at slightly higher temperatures. Sugar content in the beans heated at 112°C was higher than that in the beans heated at 121°C, and it did not decrease even after the preservation process was carried out. The ACE inhibitory activity was not significantly different for any of the beans. The colour of the beans heated at 112°C changed. The beans that were heated at 112°C and then packed in retort pouches had higher sugar content than those heated at 121°C; however, their vitamin B1 content and ACE inhibitory activity remained the same as the others. Microbiological bacteria were not observed at 112°C. Sensory testing revealed that heating the beans to 112°C was preferable over heating them at 121°C. The processing method in which beans were boiled at 112°C and then frozen produced beans that tasted good and had a high nutritional value. The difference between the frozen beans and the retort pouched beans was not related to their nutritional value, which is a functional aspect, but could be observed in their taste. That is, beans that were boiled at 112°C and then frozen tasted much better.

### Lifestyle issues of internet game use based on a study of grade 1–12 students

poster board ID 418-4-22

Country	Japan
Lead author	<b>Megumi Okutani</b> (Tokyo Gakugei University)
Co-authors	Mayuko Suzuki (Osaka Kyoiku University) Minako Yoshii (Shoinhigashi Women 's College) Kumiko Ohmoto (Osaka Kyoiku University)

#### Aim

Since the 1980s the commodification of consumer culture has entailed a media mix of animation, comics, and games easily available to children in Japan. Developments in the 21st century in internet access speed and bandwidth have led to an expansion in content that is having a major impact on children's living environments. Access to media tools such as PCs and smartphones has spurred on the purchase of goods and services. The aims of this study were to: 1. Determine laws and consumer protection pertaining to internet content risks; and 2. Identify media tools and consumer culture of grade 1–12 students in Japan in order to shed light on the consequent risks and how those risks should be handled within the context of home economics education.

#### Method

1. A literature review of prior research about consumer culture and the internet as pertaining to children, focusing on the situation in Korea, where there is proactive attention to consumer interaction with content, and including September 28-30 2011 interview research for the Korean Consumer Agency and various universities about Korea's policy and consumer education.
2. Questionnaire survey on grade 1–12 students in Japan (2009 and 2011) consisting of questions about values and ethics regarding money, media use, use of internet content, experience of playing games, etc.

#### Findings

1. Korea has already proactively instituted laws pertaining to the control of children's online gaming that includes cooling-off periods. And due to the seriousness of the problem of online gaming addiction, in 2011 limits were established to control the amount of access time to online games. There is an internet addiction and online gaming protection-remedy centre in Seoul. KCA creates text and instructs teachers to understand clearly about online gaming and trouble. In Japan, the very existence of the problem is only now being acknowledged, and there have been no laws established yet.
2. The questionnaire survey has revealed the following: Devices that did not connect to the internet before are now being used by all age groups as devices to connect to the internet. The findings suggest the possibility that online gaming is impacting children's values and ethics regarding money. As the use of game and internet content is impacting the lives of children, it is a subject that merits coverage in home economics education that deals with how time is spent, household economics, and familial relations.

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### Nutrition and Family Science faculty evaluation of the impact of revitalising public housing on the lives of low income families

poster board ID 421-4-23

Country	United States
Lead author	<b>Hazel Forsythe</b> (University of Kentucky)
Co-authors	Retia Walker (Universities of Kentucky and Maryland Eastern Shore)

Since the early 1990s federally funded HOPE VI grants have been awarded to cities across America for the purpose of revitalising the most distressed public housing. The Lexington Housing Authority (LHA) received a HOPE VI grant to revitalise the oldest public housing in the city – Bluegrass Aspendale (BGA). The revitalisation included integration of social and physical aspects, Community Social Services (CSS) support, and an evaluation of the impact of the revitalisation on the lives of the families who lived in BGA. Home ownership by BGA residents in the redevelopment of the mixed housing community was strongly encouraged. The University of Kentucky's proposal for research was accepted and faculty from two departments (Nutrition and Family Science) in the School of Human Environmental Sciences collaborated to form the evaluation team. BGA had been known as one of the most distressed areas of the city. Despite regular LHA attempts at modernising the dwellings, the development was still an eyesore that housed low income families. The purpose of this study was to examine the impact of the revitalisation on families who resided in Bluegrass Aspendale, utilising quality of life factors such as income, health, housing satisfaction, neighborhood safety, food security, homeownership, and access to community services. The research team interviewed 97 heads of households to gather baseline data as they were relocating during the rebuilding. Baseline data showed a majority of participants in the study were female (99%), heads of households (97%), African Americans (83%), and unmarried (66% single and 32% divorced/separated/widowed). There were 144 children living in those 97 households. Approximately 18% of the families had lived in BGA for 20 or more years. Follow-up data (years two and three, N=33 randomly selected from the 97 baseline) showed participants were African American females with 94% unmarried and only 30% employed. The final survey (year five, N=90) indicated a majority were female (92%), African Americans (91%), and 12% were married. CSS coordinated by licensed social workers in the city's Department of Social Services, was the primary source of support for residents throughout the project. CSS offered services through various partners ranging from education and job training, preparation for homeownership, childcare/after-school support, financial counselling, budgeting, to mental health and substance abuse counselling. Monthly nutrition and health seminars were held with the support groups to improve and sustain health outcomes. Spillover into neighbourhood values, self-sufficiency guidelines and homeownership were examined as part of sustainable futures for the residents.

### Nutrition intervention program for pregnant women in the Ivory Coast and its impact on the low-birth-weight infants: Phase I Midwives nutrition monitoring training program

poster board ID 430-4-24

Country	Canada
Lead author	<b>Lita Villalon</b> (Université de Moncton)
Co-authors	Jeannne-D'Arc Assemien (Ministry of Health, Ivory Coast) Murielle Gaudet (Université de Moncton)

#### Aim

Malnutrition is one of the causes of morbidity and mortality for children of the Ivory Coast. The prevalence of low-birth-weight infants is associated with pregnancy malnutrition. The purpose of this research is to implement a nutrition intervention program for pregnant women in three communes (Yopougon, Abobo, and Port-Bouët) located in the city of Abidjan (Ivory Coast). The intervention project will be implemented in two phases. The present study consists of phase I of the intervention project which is the midwives nutrition monitoring training program. The purpose of this research is to implement and evaluate a nutrition education program using an experiential approach to develop the required knowledge and skills for nutrition monitoring during pregnancy. The target population consists of 24 midwives from the three communes involved. The use of community-based strategies in nutrition interventions is an increasing tendency that helps adapt valuable, appropriate, and effective programs towards a target population. The experiential educational program is likely to help midwives increase their knowledge and develop their skills in order to improve their practice and pregnancy nutrition monitoring.

#### Methods

Quantitative and qualitative analyses were used in this research to measure their education level, their work experience, their knowledge and skills in nutrition monitoring and to evaluate the changes experienced by the participants. The required knowledge and skills to monitor the nutritional status such as anthropometric, interpretation, and dietary information were taught in workshops, then would be put in practice by the participants, while being observed and evaluated on their knowledge and skills.

#### Results

The results of this study indicated that the 24 midwives had an average of  $13.71 \pm 5.77$  years practice experience as midwives, the majority of them had secondary (58.33%) or university education level (37.5%) and they all received education training to be midwives. Two thirds (66.7%) of the midwives didn't have the required knowledge on nutrition during pregnancy, and 91.7% didn't know how pregnancy nutrition monitoring must be done. Even though they had a good attitude and a good perception regarding their role as midwives, they didn't feel they had the knowledge and skills to do nutrition intervention. Regarding the assessment of the program, it was well appreciated by participants.

#### Conclusion

This research has been focused on improving the practice of midwives, who have an important role in preventing pregnancy and childhood malnutrition if they receive the knowledge and skills to do appropriate intervention.

## Research on development of the food educational program using the five senses for elementary school children in Japan

poster board ID 451-4-25

Country	Japan
Lead author	<b>Yuka Ishikawa</b> (Urban Communications Inc): congress presentation by co-author <b>Satomi Sugiyama</b>
Co-authors	Satomi Sugiyama (Tokyo Gas Co) Kikue Kubota (Ochanomizu University) Yuko Kudo (Tokyo Gas Co) Masako Konishi (Tokyo Gas Co) Michiyo Kumagai (Ochanomizu University) Yukio Hattori (Hattori Nutrition College)

### Aim

Problems with children's eating habits have been worsening in Japan in recent years. The Basic Law on Shoku-iku in Japan which was enacted in June 2005 has been in full implementation and various measures have been carried out. For example, children are taught how to plant rice, food manners etc. France is the first country to have set up and deployed 'Taste classes', which are conducted at schools and have been found to be an effective way of educating children in awakening the senses. We have thought of adopting this method of awakening the children's senses in Japan. Our aim was to examine the effect of 'Taste classes' on the food education program in the Japanese elementary level. Classes consisted of a 'regular program' for 9–11-year old children and a 'short program' for 8–12-year-old children. The instructors were Japanese professional chefs

### Methods

In the 'regular program', six lessons/year were done by the chef. Children were taught the five senses during actual cooking. Questionnaires were given out to the parents of each child. In the 'short program', similar activities were used, focusing on the senses of taste and smell. All activities were carried out in Tokyo Gas cooking laboratories. The chef taught the children how to smell and taste foods. After that, children participated in actual cooking; they tasted and smelled the cooked food and were made to comment. An evaluation was made of how the children learned.

### Results

In the regular program, out of the 64 parents surveyed regarding the change in attitude of children after the lesson, 54 parents responded. Results using the following parameters: interest in food, interest in cooking, interest in five senses, fun during eating and language expression, revealed 94.4% for 'interest in food', 98.1% for 'interest in cooking', 83.3% 'interest in five senses', 87.0% for 'fun during eating' and 55.6% for 'language expression'. Three hundred children registered in the short program. Surprisingly, almost all children showed curiosity and interest on taste and smell education. Most parents were so satisfied with the program that they wanted their children to continue participating. Smell and taste education seem to help children choose food for health.

### Conclusion

Tasting and cooking using the senses raises the children's concerns about food, and it leads to the formation of healthy eating habits. We would like to encourage the implementation of this program in schools.

## Physicochemical properties and the amount of L-DOPA of cooked Hasshomame (Mucuna)

poster board ID 459-4-26

Country	Japan
Lead author	<b>Kumiko Iijima</b> (Ochanomizu University)
Co-author	Midori Kasai (Ochanomizu University)

### Aim

Mucuna bean (*Mucuna pruriens* (L.) DC. var. *utilis*) is a tropical legume which grows mainly in the Asian and African region. It is a high yielding crop and used as a cover crop but has not been much use as food. Mucuna bean contains about 4% L-3, 4-dihydroxyphenylalanine (L-DOPA) which is more than other plants. L-DOPA is precursor of dopamine, where dopamine is considered as a neurotransmitter in mammals and is used as medicine for Parkinson patients who lack dopamine. But L-DOPA causes diarrhoea and vomiting in humans and animals when ingested in large amount at a time. Normally 1.5 g/day of L-DOPA is considered safe for consumption. However, no study has been reported on the amount of L-DOPA in the various cooked Mucuna bean products. Mucuna bean grown in Japan is called Hasshomame. It used to be included in the diet but is hardly eaten now in Japan. Clarification of the amount of L-DOPA in cooked Hasshomame could lead to the expansion of Hasshomame use. The aim of this study was to investigate the physicochemical properties and the amount of L-DOPA in cooked Hasshomame and to study the cooking methods for controlling the amount of L-DOPA in the cooked products.

### Methods

Hasshomame was used as the sample. Beans were boiled, roasted, powdered, made into paste and baked (cookies, cake, bread). The amount of L-DOPA in the prepared products was determined by HPLC. Colour (spectrophotometer), hardness (texture analyser), the swelling rate of pound cake and cookies, and bread specific volume were measured and compared to that of typical preparation without Mucuna beans. Acceptability of cooking products was measured by scale value for nine statements describing food actions.

### Results

The amount of L-DOPA in roasted beans was about 50% of the amount in raw beans, in boiled beans it was about 30% and in An (boiled bean paste) it was nearly zero. It was confirmed that the combination of all the cooking procedures mentioned above were very effective in controlling L-DOPA in Hasshomame. The products were delicious and accepted by almost all of the panelists.

### Conclusion

The amount of L-DOPA after cooking under various conditions was clarified and could be controlled by various cooking conditions. When the bean is properly prepared, it can be a good food resource.

## A study of family leisure activities and planning: Focus on Geumcheon-gu in Seoul

poster board ID 466-4-27

Country	Korea
Lead author	<b>Jongmi Jun</b> (Healthy Family Support Centre)
Co-authors	Jinkyung Chang (Sookmyung Women's University) Jiyoung Park (Healthy Family Support Centre)

### Aim

Despite the fact that family leisure activities are constantly mentioned in modern society to be invaluable, most family leisure activities and related studies only tend to focus on the relationship between family members' participation in leisure activities and quality of life. It is hard to find any studies related to leisure activities varying according to the city, state or region. If providing such differentiated programs reflecting the regional characteristics is the role of the Healthy Family Support Centre, this study on true family leisure activities and invigoration will become the basic material data in providing social services.

### Method

This study was done on 146 families (438 members), families with children that participated in the family culture program of the Geumcheon-gu Healthy Family Support Centre from May 2010 to August 2011. The analysis for the study results was done with SPSS 18.0, along with frequency analysis, cross tabulation analysis and Chi-square test to grasp the reality.

### Results

Families residing in Geumcheon-gu ranked leisure activities as follows: book reading (63.7%); playing with toys (51.4%); using amusement facilities (49.32%). They also participated in many leisure activities that could be accessed in their daily lives. Having observed the results on leisure activities awareness and the family leisure activities participation, it proved that experience of family leisure activities affected the overall awareness of leisure activities. Having used the Chi-square test to understand the effects of family leisure activities participation on child growth,  $\chi^2 = .86(df=3)$  showed a statistically meaningful difference ( $P < .05$ ).

### Conclusion

These are the proposals based on the study's results. Firstly, even though most of the family leisure activities are centred on daily leisure activities that can be accessed in the family environment, one could see these leisure activities as individual rather familial. As most people favour activities done within the family, it is necessary to facilitate diverse activities that can be played within the family regardless of space and time restrictions. Secondly, it is necessary to expand the access to diverse leisure activities so that families may experience many different leisure activities at times that suit them. In other words regional family entertainment, cultural festivals and other regional events need to be invigorated to provide open and accessible places. Third, it is shown that families within Geomcheon-gu participate in family leisure activities seeking familial closeness and happiness. Therefore leisure activities programs should focus on the purpose of improving family relations. Fourth, the participants of this study realised that family leisure activities greatly affected the children's emotions and social development. Therefore a departmentalised program needs to be run that allows diverse leisure activities depending on the child's developmental tasks or the tasks of family life cycle.

## Development of methods of home economics education for improving quality of life in developing countries: Creation and use of living condition surveys

poster board ID 488-4-28

Country	Japan
Lead author	<b>Haruko Amano</b> (Japan Women's University)
Co-authors	Kazue Mochizuki (Akita University) Masako Takamasu (Japan Women's University) Kei Sasai (Japan Women's University) Fumiko Iida (Japan Women's University)

### Aims

The aim of this study is to develop methods for home economics education for improving the quality of life of individuals and families in developing countries. Firstly, it incorporates the standpoint of home economics towards improving quality of life in the process of achieving the Millennium Development Goals (MDGs). Secondly, it involves the creation of charts classifying international cooperation activities centred on raising the quality of life from the angle of home economics. Thirdly, everyday living condition survey forms that can be used in all regions in developing countries are created on the basis of these classification charts. Fourthly, methods of education in home economics using these living condition survey forms are proposed.

### Method

We conducted on-site surveys in several developing countries in connection with the Asia home curriculum education project. We carried out questionnaire-based surveys among Japan Overseas Cooperation Volunteers (JOCV) personnel sent to developing countries in Asia, Africa, Central America and central South America in connection with production of the living condition survey forms.

### Results

A classification of international cooperation activities centring on improvements in quality of life was brought to light from the six perspectives of dietary environment, health and hygiene, living environment, clothing environment, community and society, and family, and the connections with the Millennium Development Goals were indicated. The indices introduced for creating the living condition survey forms included fifteen for dietary environment, four for health and hygiene, nine for living environment, eight for clothing environment, five for community and society, and six for family. Two to five items were extracted in connection with the stages of everyday living conditions corresponding to each of the indices.

### Conclusion

The everyday living condition survey forms created in this study are able to throw light on problems involved in daily life in developing countries and on the causes of these problems, and it became evident that use of these forms is an effective way of selecting the content of educational support in accordance with varying conditions.

## Skipping breakfast is associated with constipation in post-adolescent women in Japan

poster board ID 509-4-29

Country	Japan
Lead author	<b>Tomoko Fujiwara</b> (Ashiya College)
Co-author	Rieko Nakata (Nara Women`s University)

### Aim

Skipping breakfast has been reported to induce low frequency of bowel movements in adult women. Recently, increasing attention has been paid to the adverse effects of skipping breakfast on quality of life in young students.

### Methods

In this study, we examined the relationship between skipping breakfast and bowel movement by conducting a questionnaire survey of female college students aged from 18 to 20 years old.

### Results

The questionnaire demonstrated that the frequency of bowel movements was significantly lower in the group having skipped breakfast. In contrast, there were no significant differences in body mass index. We further examined the relationship between dinner time and bowel movement in female students by conducting a questionnaire survey and found that students who ate dinner early showed significantly better bowel movement.

### Conclusion

These findings indicate that the frequency of bowel movement in young Japanese women is influenced by dietary habits and suggests that dietary rhythm is one of important factors to regulate bowel movement.

## The effects of Korean mothers' educational beliefs about basic learning skills on mothers' home learning activities with their preschool children

poster board ID 528-4-30

Country	Korea
Lead author	<b>Myung Sook Song</b> (Songwon University)
Co-authors	Youngjoo Nam (Seoul National University) Eunsuk Cho (Myungji College)

The purpose of this study was to examine the effects of maternal beliefs and socio-demographic variables on Korean mothers' home learning activities with their children. Firstly, the relationships between maternal educational beliefs about basic learning skills (instruction, expectation level, attribution), mother's socio-demographic variables (education level, employment status) and home learning activities were examined. Secondly, the relative effects of maternal beliefs, education level, employment status on home learning activities were examined. The subjects were 290 mothers of 5-year-old children in Gwang-ju. The research data were collected through structured questionnaires. Statistical analysis of data were one way ANOVA, Pearson's correlations and hierarchical multiple regression analysis. The main results were as follows:

1. Maternal beliefs about instruction were significantly related to mothers' home learning activities. The mothers who preferred didactic, teacher-directed instruction engaged more in learning activities with their children at home.
2. Maternal beliefs about expectation level were significantly related to mothers' home learning activities. The mothers who expected that their children acquire basic learning skills to a high level before entering primary school engaged more in learning activities with their preschool children at home
3. Maternal beliefs about attribution were significantly related to mothers' home learning activities. The mothers who attributed success (in basic learning skills acquisition) to effort engaged more in home learning activities with their children
4. Maternal educational level was significantly related to mothers' home learning activities. More educated mothers were more likely to engage in learning activities with their children at home
5. Maternal employment status was significantly related to mothers' home learning activities. Mothers not in paid employment engaged more in learning activities with their children at home
6. The results of multiple regression analysis indicated that maternal educational beliefs, educational level and employment status were significant variables predicting mother's home learning activities. However, the predictive powers of these belief variables were different depending on maternal employment status. In the employed mothers group, maternal beliefs for instruction, expectation level and attribution were significant predictors of mothers' activities. In the unemployed group, only the instruction belief variable was a significant predictor.

To conclude, maternal educational beliefs turned out to be the vital factors in explaining mothers' home-learning activities.



### Use of spices to enhance the taste of dishes

poster board ID 533-4-31

Country	Japan
Lead author	<b>Yuina Tanaka</b> (Ochanomizu University)
Co-authors	Hiroe Otomo (Ochanomizu University) Ji Yoon Park (Ochanomizu University) Kikue Kubota (Ochanomizu University)

#### Aim

Spices have been mainly used for medical purposes and recently they have been considered as functional foods because of their contribution to food science, such as improvement of taste and aroma. Japan is an ageing society and there are a lot of undernourished people due to inadequate food intake either due to lack of appetite or other reasons. This phenomenon is increasing due to limited intake of food. It is necessary to improve food quality to increase food intake of the elderly. In this situation, spices could play an important role in the improvement of food taste which will enhance appetite and contribute to a healthier life. The main objective of this study was to investigate the influence of spices on dishes, focusing on interaction between the flavour of spices and taste of dishes.

#### Method

Eleven kinds of commercial spices obtained in local Japanese market were used. Aroma extract was prepared by steam distillation. Chicken broth made of chicken bones was prepared in the laboratory. Flavour extracts of spices were added to broth and subjected to sensory evaluation of ten tastes by thirteen experienced panelists. We used eighteen statements and scored the strength of these statements to determine how spices influenced the taste of broth. The flavours were objectively analysed by using gas chromatography-mass spectrometry, and GC-olfactometry.

#### Results and discussion

The results of this study indicated that all of the spices used had specific characteristic flavours that improved umami taste of soup and decreased unpleasant meaty and undesirable flavours. Furthermore, we focused on lemongrass and basil among the eleven spices because they obviously enhanced the umami and savoury taste more. By adding each aroma extract distilled from lemongrass and basil to chicken broth, scores for 'thickness', 'mellowness', and 'satisfaction' were significantly increased. In addition, adding basil flavour increased scores for 'clarity', 'mildness', and 'sweet taste'. The results of instrumental analyses suggested that there were some key compounds contributing to enriching the taste of the soup. In conclusion, this study clarified scientifically that some spices have a function of improving the food taste and quality, which had been known anecdotally and through experience. We are planning to examine other spices from this point of view to find out effective food ingredients that contribute to the production of new healthy foods especially for the elderly, which could raise quality of life.

### Dietary behaviour of male and female adolescents in relation to nutrition information and food labels

poster board ID 536-4-32

Country	Korea
Lead author	<b>Sang Sun Lee</b> (Hanyang University)
Co-authors	Kyung Min Nam (Hanyang University) Jung Young Park (Hanyang University) Ki Rang Kim (Hanyang University) Ji Min Lee (Hanyang University) Min Kyung Kwon (Hanyang University)

#### Aim

The purpose of this study was to investigate the dietary behaviour of male and female adolescents in relation to nutritional information and food labelling.

#### Methods

A questionnaire was administered to 9042 students in 28 high schools and middle schools in Seoul (2416 males, 6626 females). The questionnaire investigated dietary behaviour, hygiene-related dietary patterns, cognition of nutritional information and food labelling. To determine the hygiene-related dietary pattern, questions were asked about whether the students were concerned about the food manufacturer, expiration date, and food appearance and whether the subjects washed their hands before eating. The items concerning the understanding of nutrition information labels and food labelling examined the cognition of nutrition information and food labelling as well as understanding of the information.

#### Results

The percentage of students whose response was 'yes' to the questions about whether they check the food manufacturer, expiration date, and food appearance was higher in female students (27.0%, 61.6%, 62.9% respectively) than in male students (20.0%, 50.6%, 54.9% respectively). The percentage of the students who responded 'yes' to the question about washing their hands was significantly higher among the female students (35.6%) than the male students (33.7%) ( $p < 0.05$ ). The percentages of students who responded that they recognise nutrition information labels and that they are satisfied with information labels were higher among the female students (32.77%, 58.74% respectively) than the male students (26.75%, 51.15%, respectively) ( $p < 0.01$ ). The percentage of students who responded that they read nutrition information labels was significantly higher among the female students (61.9%) than the male students (55.54%) ( $p < 0.05$ ). The percentages of students whose response was 'yes' to 'I read nutrition information labels', 'recognise the nutrition information label', and 'My choice of food is influenced by nutrition information labels' were significantly higher among the female students (64.58%, 45.24%, 67.29% respectively) than the male students (57.47%, 30.68%, 57.81% respectively) ( $p < 0.01$ ).

#### Conclusion

The results of this study showed that promotional materials encouraging consumers to check food manufacturers, expiration dates, and food appearance should be prepared and sufficient education should be implemented targeting mainly male students, especially high school as the main subjects. Moreover, a practical education plan needs to be prepared to elevate the satisfaction with and the recognition ratio of food information labels since the choice of food by the adolescents is influenced by food information labels.

### Building educational capacity of secondary students through the integration of reading in the family and consumer sciences classroom

poster board ID 546-4-33

Country	United States
Lead author	<b>Karen Alexander</b> (Texas Tech University)

Building educational capacity of secondary (high school) students is essential for their future success with college and career opportunities. Family and Consumer Sciences (FCS) contribute to the educational capacity and advancement of students including in the area of reading on a daily basis, but when it comes to the integration of reading, FCS teachers face two issues. Firstly, they are not reading teachers; however, like every other teacher throughout the United States, they are held accountable for student progress in FCS content and all academic areas including literacy. Secondly, a wide range of students including those who are reading below grade level enrol in FCS courses. Therefore, FCS teachers are confronted with varying reading levels within one class. This exploratory study examined how an intensive professional development for FCS teachers focused on the integration of reading would be effective in preparing teachers to integrate reading strategies in the FCS curriculum. It was believed that this more intensive model would result in greater understanding and use of the various reading strategies by the participating teachers, an increased implementation of the strategies, and increased reading levels of the students in the classes of the participating teacher. The sample consisted of nine FCS teachers and 300 of their students. Two measures were used to determine the outcomes for the teachers and of the students: Metacognitive Awareness of Reading Strategies Inventory (MARS) scores and a Reading Strategy Self-Report Inventory. Results of the t-test pretest-posttest analysis of the MARS indicated gains with the overall student scores and with the three subscales. Analysis of Variance (ANOVA) results revealed that there was a statistically significant difference with the mean scores for student grade-level. Teachers reported having success with these strategies: Anticipation Guides, Cornell Notes, Graphic Organizers, Guided Reading, Read Pair Share, Stump the Teacher, and What-I-Know Sheets. Student outcomes for the FCS teachers receiving the focused professional development were positive, which supports the belief that FCS teachers can enhance students' reading levels if they receive focused professional development on reading integration. If the teachers feel knowledgeable about the strategies, they will be more likely to use them on a continued basis. The strategies that the teachers used were reported as fairly easy to integrate and they worked well with FCS classroom content. As FCS teachers integrate these focused reading strategies, they can increase the educational capacity of their students which could enhance their success with future college and career opportunities.

### A study on social capital of baby boomers in Korea

poster board ID 564-4-34

Country	Korea
Lead author	<b>Jiwon Seo</b> (Korea National Open University)

#### Aim

Faced with exceptionally rapid ageing accelerated by lowest fertility rate in the world, social issues related with the sustainability of wellbeing in the aged Korean society have increased. In particular, Korean baby boomers born in between 1955 and 1963 comprised of a special generation which comprised 14.9% of total population, and their retirement began in 2010. Thus, policy agendas related with wellbeing of baby boomers, the so-called 'club sandwich generation', have been proposed. Social capital theory provides theoretical framework that explains how interpersonal relationships contribute to increasing economic returns. The purpose of this study was to examine the generational gap in social capital between baby boomers and their prior generation, and investigate the relative contribution of social capital to economic wellbeing of the two generations.

#### Method

For the empirical analysis, data from the first wave of KLoSA (Korea Longitudinal Study of Ageing) conducted by Korea Labor Institute were used, including baby boomers (n=2442) and prior baby boomers (n=7812). For empirical models, social capital was measured by two dimensions: cognitive and structural social capital. Cognitive social capital is characterised as trust and reciprocity, and structural social capital divided into individual/familial level (friendship, marital status, relationship with child) and social level (informal and formal network, social participation). Chi-squares, t-tests, and multiple regressions were performed using SPSS 19.0.

#### Results

The major findings were as follows: Firstly, the level of cognitive social capital was statistically higher than their prior generation. In the individual/familial level of structural social capital, baby boomers were not more abundant than their counterparts. On the other hand, in the perspective of social level of structural social capital, baby boomers had more resources than their counterparts. Secondly, after controlling education, health, employment status, region and family income, six and seven variables of social capital contribute to their economic wellbeing in statistically significant ways in baby boomers and their counterparts. Five variables of social capital (trust, marital status, relationship with child, amity, leisure group) were commonly significant, while reciprocity is significant only in baby boomers, and friendship and reunion meetings are only in prior baby boomers. Based on the empirical results, policy implications for the priority of public investments in social capital that contributes to the economic wellbeing of baby boomers will be provided. In particular, the alternative policies for social participation were analysed considering gender and marital status.

### Evaluation of the built environment learning programs for primary schoolchildren utilising an eco-designed school building in Japan

poster board ID 611-4-35

Country	Japan
Lead author	<b>Ineko Tanaka</b> (Graduate school of Urban Innovation)
Co-authors	Shin Taniguchi (Otsuma Women's University) Takaaki Koga (University of Tokyo) Etsuko Mochizuki (Chiba Institute of Technology) Minako Murakami (Keikaku-Kobo Inc)

Many energy-saving technologies and techniques have been applied to buildings in recent years, however, CO2 emissions from the building sector has been increasing in Japan. 'Eco-schools' have increased in Japanese primary schools since 1997. The primary objective is to improve the learning environment of school buildings with low environmental load and high eco-friendly facilities/materials. In addition, environmental education has to be included in school curriculum. However, some reports said that the energy consumption in eco-schools was higher than the other school buildings (Ikezawa et al 2009). One of the reasons seems to be that we have been losing our sensitivity to indoor climate and our motivation to change it, because most facilities are controlled automatically or complicated to manage for teachers and children. It is important to acquire 'built environment literacy', that enables residents to control the indoor environment using low energy and responsible eco-friendly actions, in eco-buildings, especially in eco-schools. In order for school children to acquire the literacy described above, the built environment learning programs have been developed in actual primary schools in Tokyo by the authors since 2008. In this paper, the effects of the programs were verified from various viewpoints for the purpose of evaluating the possibility of applying the program to other schools in Japan. The programs were mainly constructed in three stages. In the lower grades of primary school, children learn about the natural environment as EE. In the middle grades, they experience the built environment controlled by the sun and they also learn about the cooling techniques installed in the school building using their own sensors or tools. In the upper grade, children learn about complex built environment issues, such as global environmental issues, built environment issues and the relationship between the natural environment and built environment. To verify the effect of the programs on children's daily life at each grade, the results of children's reports were examined. And the questionnaire and interview survey to the teachers who gave the programs were carried out. The suitability of the programs as general classes was confirmed. The survey also gave us future subjects for the learning programs for wide use in other schools in Japan. Moreover, the effect of the programs on energy-saving actions was slightly confirmed by comparing energy consumption among 44 primary schools in the same area.

### Gender inequality in leisure time for Korean employees

poster board ID 618-4-36

Country	Korea
Lead author	<b>Oi-Sook Kim</b> (Korea National Open University)
Co-authors	Hee Keum Cho (Daegu University) Eun Jung Park (Sungkyunkwan University)

#### Aim

Employment status and gender have been found to be important variables affecting leisure time. This research examines gender differences in leisure time during weekdays and draws attention to how the determinants of leisure time operate differently for Korean employed men and women.

#### Methods

The data used for this study were from the '2009 Time Use Survey' conducted by the Korea National Statistical Office. In the survey respondents were asked to record main and simultaneous activities in the structured time diary with 10-minute intervals for two designated days. The data from 9384 employed men and 6811 employed women aged 20–59 were analysed using multiple regression analysis. Leisure time for dependent variables encompassed time devoted to socialising, adult study, mass media, religious activities, entertainment as spectator, sports, hobbies, games, volunteer activities, purchasing related to leisure, and travel for leisure as main activities.

#### Results

The results show how leisure time differs by gender. Employed women have 39 minutes less in leisure time per weekday than their male counterparts. Variables analysed as determinants of leisure time included age, marital status, educational level, and presence of children under age 6 in the household. The variables impact leisure time differently for men as compared to women. Older age increases leisure time more for men than women, whereas higher educational level increases leisure time more for women than men. Additionally, marriage reduces leisure time more for men than women whereas the presence of children under age 6 reduces leisure time more for women than men. However, socio-demographic variables overall only have slight effect on leisure time. Hours of paid work is the most important variable affecting leisure time for both male and female employees.

#### Conclusion

Findings are discussed with respect to constraints on female leisure time. Implications for reducing gender inequality on leisure time and improving the quality of leisure life, especially for female employees, are provided.

**Links among parenting behaviours, co-parenting, and intellectual development for young children**

poster board ID 630-4-37

Country	Taiwan
Lead author	<b>Jo-lin Chen</b> (Fu-Jen Catholic University)

The purpose of this research was to explore the relations of parenting behaviours, co-parenting, family socioeconomic status and children's intellectual development for 4–5-year-old children. It investigated the effects of parenting socialisation process, and family socioeconomic variables on children's intellectual development. The sample consisted of 225 families of 4–5-year-old children recruited from five public and private preschools in the Taipei area. There were 106 girls and 119 boys in the study. Parents were administered the Family Questionnaire which included the Parenting Behaviours Scale, the Co-parenting Scale, and family and children's backgrounds. The parenting behaviour scale included the parents' teaching/coaching behaviour ( $\alpha=.87$ ), warm behavior ( $\alpha=.92$ ), stimulating behaviour ( $\alpha=.87$ ) and demanding behaviour ( $\alpha=.90$ ) and family and children's backgrounds. The Co-parenting Scale included supportive behaviour ( $\alpha=.93$ ) and unsupportive behaviour ( $\alpha=.92$ ). Children were assessed with the WPPSI-R (PIQ, VIQ and IQ) one by one. The data were analysed by descriptive statistics, Pearson correlations, and multiple regression analyses. The results showed that all the variables, including the parenting behaviours, co-parenting behaviours and family socioeconomic status significantly accounted for 7%, 8% and 10% of the variance in children's PIQ, VIQ and IQ. The regression analyses also indicated that parents' teaching/coaching behaviour, parents' stimulating behaviour, unsupportive behaviour and family socioeconomic status significantly predicted children's intellectual performance. Practical suggestions and implications were made for early childhood and family education practitioners and related researchers.

**The support needs of teenage fathers who are still at school**

poster board ID 634-4-38

Country	South Africa
Lead author	<b>Marissa Persens</b> (University of the Western Cape): congress presentation by co-author <b>Judith Cornelissen</b>
Co-author	Judith Cornelissen (University of the Western Cape)

**Aim**

Teenage pregnancy is a great challenge worldwide, especially in South Africa. Many teenagers' lives are being interrupted because of this. More and more teenagers are leaving school and are forced to take on low paying jobs to be able to support their children. In most studies, especially in South Africa, the emphasis is placed on the experiences and needs of the teenage mother, but the focus of this study is the experiences and support needs of teenage fathers. The aim of this study is to determine the support needs of teenage fathers who are still at school, and whether these support needs are being met and how.

**Method**

This research is a descriptive study that was conducted qualitatively. In-depth individual interviews with 10 teenage fathers who are still at school were conducted. The aim was determine their support needs and how these needs were met. A snowball sampling method was used to obtain respondents. A total of 10 teenage fathers were interviewed and a questionnaire was used to collect the demographic information of the participants. The participants' confidentiality and anonymity were ensured as well as their right to withdraw from the study at any time without any consequences. The data was analysed by a thematic analysis, it was then coded and categorised. The themes were discussed according to the objectives of the study and in relation to previous studies. The respondents participated in the research voluntarily and written informed consent was obtained from them and their parents. The major themes identified were: transition to fatherhood and becoming a father; trust; economic support; educational support; advocacy; health practitioners and social workers; emotional support and barriers to support.

**Results and conclusion**

The main findings indicated that the support needs of teenage fathers between the age of 15 and 19 while having this life-changing experience and still being at school, were well met. Recommendations were aimed at government, non-government institutions, communities, schools and to anyone working with teenage fathers. Recommendations for further research include exploring the length that these relationships between the young parents last, evaluating the reasons for it lasting or not, and evaluating the possible impact of well-trained peers for sex education versus formal sex education taught by educators in schools.

**Use of newly bred 946 carotene cassava in production of value-added products: Implications for food security in Nigeria**

poster board ID 637-4-39

Country	Nigeria
Lead author	<b>Chinyere Aniedu</b> (National Root Crops Research Institute): congress presentation by co-author <b>Esther Osahon</b>
Co-authors	Esther Osahon (Michael Okpara University) Rachel Omodamiro (National Root Crops Research Institute)

The investigation into food qualities of six newly bred  $\beta$ -carotene cassava, namely NR07/0427, NR07/0432, NR07/0326, NR07/0506, NR07/0497 and NR07/0499, of the National Root Crops Research Institute (NRCRI), Umudike, Nigeria, was carried out using TMS 30572 as control. The chemical composition of the fresh roots to determine their carotenoid, moisture and starch contents was also carried out. Furthermore, the six newly bred  $\beta$ -carotene cassava and the TMS 30572 (control) were processed into high quality cassava flours (HQCF) with which their physico-chemical properties were determined. The HQCF were also used in making 10% cassava bread, chin-chin, cakes, strips and salad cream (using the method described by Onabolu et al (1998) and evaluated organoleptically. The result showed that the moisture contents of the cassava roots ranged from 71.27% (TMS 30572) to 75.26% (NR07/0427) while the starch contents ranged from 11.69% (NR07/0427) to 29.16% (NR07/0499). The starch contents of the flours produced from the roots ranged from 23.18% to 50.42%, crude fibre ranged from 1.20% to 2.4% and ash ranged from 1.30% to 2.35%. Packed bulk density ranged from 6.8 to 14.20g/ml, loose bulk density ranged from 23 to 35g/ml and pH from 5.05 to 5.70. The carotenoid content of fresh root samples had values from  $3.876 \times 10^3 \mu\text{g/g}$  for NR07/0326 to  $0.828 \times 10^3 \mu\text{g/g}$  for TMS 30572 (control). The values for the HQCF ranged from  $0.877 \times 10^3 \mu\text{g/g}$  to  $0.379 \times 10^3 \mu\text{g/g}$  for NR07/0326 and TMS30572 respectively. The sensory evaluation result of the 10% cassava bread, chin-chin, cakes, strips and salad-cream produced from  $\beta$ -carotene cassava varieties revealed that in general acceptability, all the samples were acceptable to the panelists. This study showed that the processed  $\beta$ -carotene cassava varieties contained adequate quantities of carotenoid to combat vitamin A deficiency. The physico-chemical properties and sensory evaluation indicated that  $\beta$ -carotene cassava varieties are good sources of starch, minerals and fibre and could be very useful in nutritional applications and diet formulations.

**Quality characteristics of low-fat ground lamb meat produced by supercritical carbon dioxide extraction**

poster board ID 690-4-40

Country	United Arab Emirates
Lead author	<b>Isameldin Mohamed</b> (United Arab Emirates University)
Co-authors	Sulaiman Al-Zuhair (United Arab Emirates University) Hanifa Taher (United Arab Emirates University) Saada Al Nuaimi (United Arab Emirates University) Hanan Afifi (United Arab Emirates University)

**Aim**

Meats contain visible and/or intramuscular fat. Dietary recommendations encourage consumers to protect themselves against chronic diseases by increasing their intake of healthy foods and reducing their intake of fat. Extracting fat from ground meat using supercritical carbon dioxide (SC-CO2) has several advantages (reduction of extraction time, no residual effect and low toxicity) compared to traditional organic solvents. The objectives of the study were to produce of low-fat ground lamb meat (LFGLM) using SC-CO2 extraction and assess its quality.

**Methods**

The meat was minced, freeze dried (FD) and extracted using supercritical carbon dioxide (SC-CO2) extraction. Proximate composition, rehydration ability, rehydration capacity, instrumental colour and sensory characteristics were evaluated.

**Results**

Seventy-eight percent of the original fat was extracted at 45°C, pressures 500 bar and a CO2 flow rate of 3 ml min<sup>-1</sup>. The results showed that, LFGLM had the lowest moisture and fat content and the highest protein and ash. Rehydrated FD and SC-CO2 meats had similar rehydration ability and rehydration capacity. Rehydrated SC-CO2 meat had a lighter colour with less redness (highest L\* values and the lowest a\* values). Trained sensory panel results indicated that LFGLM had similar (lamb, bloody and fat) aroma intensities and significantly lower colour, surface shine, greasy touch and overall quality intensities compared to freeze dried, commercial low fat and minced lamb (control) meats.

**Conclusion**

Healthy and stable low-fat ground lamb meat can be produced by SC-CO2 extraction.

## Stretch and recovery for four knitted fabrics using two different measures

poster board ID 699-4-41

Country	United States
Lead author	<b>Malorie Urda</b> (Central Michigan University): congress presentation by co-author <b>Usha Chowdhary</b>
Co-author	Usha Chowdhary (Central Michigan University)

### Aim

Stretch and recovery attributes are important aspects of textiles. They can enhance action, comfort and performance for the wearer. Stretch fabrics make the garment move comfortably and freely for the body in motion. In general, knitted fabrics have higher degree of stretch than woven fabrics. However, the ability to stretch and recover can vary depending upon the knit type and have an impact on decision making for various end-uses. Literature review revealed that very limited work has been done in this area. Therefore, the purpose of this paper was to determine stretch and recovery of four knitted fabrics using Fryma Dual Extensometer and Longworth measure.

### Method

Fryma Dual Extensometer is an instrument produced by the internationally recognised company Atlas. Fryma Dual Extensometer measures stretch up to 300% for knitted fabrics. The Longworth measure can test up to 400% of stretch and is used in the apparel industry. Both instruments measure stretch as a percentage. Therefore, recovery was also computed as a percentage. It was represented by percentage change in the fabric dimensions after ten minutes for both methods. Ten minute recovery time was allowed because it is the practice used in one of the apparel plants.

### Results

The fibre content of the available fabrics represented were 100% polyester, poly/cotton blend, cotton/spandex blend, and nylon/spandex blend. Fabric count for the fabrics ranged from 66 to 127. Three fabrics had weft knit construction and one had warp knit construction. Three of the four fabrics were medium weight and fleece was heavy weight. Findings revealed that the fabric stretch ranged between 36.8% and 161.85% in crosswise direction and 19% to 109% in the lengthwise direction with Fryma Dual Extensometer. All knits grew and recovered their original dimensions from 100% to 90.12%. Values for the Longworth method were lower than the other test. The t-test analysis revealed significant differences between crosswise and lengthwise stretch and recovery for both tests. Inter-method differences were not significant for all comparisons.

### Conclusion

For the reported study, the stretch and recovery were different for different types of knits. The stretch and recovery varied using two different methods for the same fabrics. The findings warrant that testing should be done to compare warp and weft knits exclusively and inclusively for different end-uses to increase the reservoir of knowledge for knitted fabrics.

# Textiles exhibits

Tuesday 17 July – Thursday 19 July

Room  
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## EXHTEX Textiles exhibits (sponsored by Whitehouse Institute of Design)

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### Grandma's gift

Lead author

**Catherine Amoroso Leslie** (Kent State University)

United States

#### Materials used

Discarded cotton embroidery floss, scrap needlepoint canvas, recycled fabric, recycled hooks and eyes.

#### Techniques used

Needlepoint, hand sewing.

#### Design inspiration

Individuals who practise the needle arts including sewing, embroidery, knitting, crochet and quilting often accumulate a 'stash' of materials and partially-made projects over their lifetimes. When they age past a point of being able to stitch or pass away, the family is often faced with 'stuff' they cannot use and in which they see no value. Working in university collections of textiles and costume, I often encountered family members looking to donate these items. I also noticed discarded needlework materials languishing at yard sales and flea markets. I once overheard an antique dealer derisively refer to this type of material as 'old grandma stuff'. My own grandmother taught me many of the needle arts and we had a special connection around the creation of items with needle and thread. When she passed away, I was determined not to allow her 'stash' to become 'old grandma stuff'. It was from these remnants that 'Grandma's Gift' was inspired. I sought to re-purpose her materials into a work of art which demanded respect in a way that the scraps would not.

The piece is a wide belt, made from leftover embroidery threads, fabrics, and sewing notions. The shape represents a hug. I chose needlepoint because of the permanence. The pattern reflects a quilt. The amount of floss available varied for each colour, so I had to 'budget' throughout the process. The piece stiffened with layers of scrap interfacing and backed with felt. The closure is hooks and eyes scavenged from her sewing box.

To showcase the belt, I designed and constructed a rayon velvet dress out of purchased material. The style is similar to dresses that my grandmother wore in the 1930s.

#### Method of display

Mannequin, size 10 or 12, to show the three-dimensionality of the piece.

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### Subdued baby's breath

Lead author

**Su Kyoung An** (Central Michigan University)

United States

The purpose of 'Subdued baby's breath' is to give women a unique and beautiful dress while expressing the beauty of naturally dyed cotton by using the 100 per cent recycled fabrics.

#### Materials

The dress was made of 100 per cent recycled fabrics. From the old closet, I found 100 per cent cotton old curtains, which my mom used 10 years ago. I used those fabrics to build this dress.

#### Techniques

The blue fabric was used to make the general part of dress. I draped on a size 6 standard body form, incorporating two waist darts on the front pattern, no darts on the back pattern, and a scoop neckline. Below the waistline, three waist yokes on the front and four waist yokes on the back were developed. One front skirt piece on the centre line and two pieces of back skirt patterns are below the yoke line. From the front yoke line to the back yoke line, the side panels were created on each side using a gathering technique. Over each of the side panels, two large, wide gathered pockets were attached. A long invisible zipper was placed in the center back for the closure.

# Textiles exhibits

Tuesday 17 July – Thursday 19 July

To express the focal point, the white cotton fabric was cut on along the grain to make the straps. These pieces of straps were dyed with coffee, cinnamon, yellow onion, rose and gardenia. Mordants (alum, copper, and iron) were also used to get a variety of colours through natural dyeing. The zigzag stitch created the balanced gathers on the center of the strap. These naturally dyed straps were applied to express the bloom of baby's breath.

## Inspiration

The inspiration came from the bloom of baby's breath. The baby's breath is the splendid and gorgeous flower. To express its grace, 'Subdued baby's breath' was constructed from the fabric straps which were naturally dyed to look elegant.

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## Indian Kantha embroidered sari

Lead author **Kavita Patil** (SMRK Mahila Mahavidyala)

India

Embroidery is one of the ancient techniques of textile decoration in India. The embroidery stitches used might have come to India from different countries of the world but they have been adopted with variations in different parts of our country. Each part of India has contributed much to the style of embroidery characteristics of its own tradition and culture. Today all states in India still continue the tradition of embroidering beautiful pieces for their attire.

## Inspiration

Kantha embroidery work is a folk art of West Bengal. It literally means 'Bengalla quilts'. Kanthas were prepared both in East and West Bengal. In rural Bengal kanthas are made by women for their personal use. This exhibit is a source of inspiration from Kantha. Kantha sari is embroidered in a traditional manner by adopting traditional motifs as well as stylised motives designed and embroidered by researcher.

## Material

The women in Bengal mostly wear white saris. Hence the base material was always white for Kanthas. Today silk such as Kancheepuram, Tussore or raw silk in variety of colours is used as base. For the sari in an exhibit is of mulberry silk in parrot green colour. The colours of the embroidery threads used are blue, green, yellow, red and black. The threads normally used are taken out from the borders of discarded saris. Anchor cotton threads are used for embroidery in black, orange, white and yellow.

## Motifs

Lotus, tree of life, birds and fish, Sankhas (couch shell), Kalkas, floral scrolls, creepers and animal figures are very popular for Kanthas. Stylised forms of peacocks, fish, lotus, floral scrolls and kalka motifs are used in the exhibit.

## Technique

Technique used is hand embroidery. Stitches used are darning, satin and loop. For the border, stem stitches are used. Most common and typical stitch being

## Method of display

Freestanding (mannequin)

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## Rebirth of the kimono

Lead author **Yoshiko Odamaki** (Tokyo Kasai University)

Japan

## Materials

Every kimono has the same pattern and can be used again and again over the generations. Almost all Japanese women have a number of kimonos in their closets. Nowadays, they wear the kimono only for certain traditional ceremonial days such as graduations or weddings but they want to wear their beautiful kimonos in daily events more casually. That is the reason why it is popular to make dresses out of kimonos in these days. However, they are very reluctant to cut up their valuable kimonos.



# Textiles exhibits

Tuesday 17 July – Thursday 19 July

## Inspiration

A kimono is personally adjustable according to body shape because the kimono includes some tie-strings and a belt. A woman's kimonos have usually been passed down over several generations, from grandmother to mother to daughter. A young bride's dowry included several kimonos. There are many memories and tender feelings attached to their kimonos. That is the reason why I tried to come up with a way of making dresses out of kimonos without cutting up the kimonos. I had a sudden inspirations involving what is called 'Uchikake', a kimono that is a kind of bridal over-dress that features a beautiful design on the back. I thought of using the back panel of the kimono for the front of a dress.

Utilising the kimono, I designed the new-style dress that would hang on the wearer in the shape of a butterfly in a blue spring sky.

## Technique

1. I designed this new dress using an old kimono without cutting any part of the kimono. I only undid a little of the stitching on the front neckline (the back neckline of the kimono).
2. This can be done by draping the kimono on a dummy and doing all the stitching by hand. This allows you to put the kimono back together at any time.
3. Traditional Japanese kimono material is recycled into a new Western-style dress.
4. I used flower fashioned from braids to decorate the bottom of the V neckline in the back.

425

## Free spirit: Sustaining traditional technique

Lead author

**Usha Chowdhary** (Central Michigan University)

United States

## Material

Seventeen silk scarves in ivory colour with 8" x 54" dimensions were tie dyed to create a cape. Each scarf cost approximately three (US) dollars. Other materials used for the exhibit included rubber bands, dyes, thread, and decorative buttons.

## Techniques

The exhibit was created by using the following three techniques:

Tie dyeing was using dyes that were acidic in blue and rubine colors. The dye solution used distilled water, powdered dye, salt, and vinegar. Two and three step dyeing processes included creating design with rubber bands and dipping in blue colour first. The exhibit was left in the boiling dye solution for five minutes. The exhibit was then thoroughly rinsed with warm water until it had colour-free water. Then, additional rubber bands and thread were used for resisting dye penetration before dipping in the rubine colour to add accent of color and spirit for another five minutes. The scarves were removed from the boiling dye solution and rinsed with warm water after removing the tied thread and rubber bands. Rinsing continued until dripping water was colour-free. The scarves were then air dried and ironed when still moist. The tie dyeing was done for two scarves at a time to allow for subtle differences due to natural variability.

Machine sewing was done on each scarf with gathering stitch for creating rhythmic waves and to add movement in design. All scarves were then joined on the shorter dimension and reduced to required dimensions with shell tucks. The edges were secured with two buttons.

Hand stitching was done to sew the decorative buttons and to baste all scarves together before joining with machine and creating shell tucks.

## Design inspiration

Sustaining childhood memories of technique and clothing.

## Display method

The exhibit will be best represented on hanger.

# Textiles exhibits

Tuesday 17 July – Thursday 19 July

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## The history of plaid

Lead author

**Gwendolyn Hustvedt** (Texas State University)

United States

### Materials

Wool (fibres and yarn) 22cm x 16cm

### Techniques

Felting with wool

### Inspiration

Drawing inspiration across the mists of time, this piece pays honour to the earliest Celtic weavers using the method of felting. The repetitive layering of colour and line is interwoven with echoing units of interwoven fibres that manipulate the scale of the inspiring plaid design to create a sense of distance that draws the viewer into the past of the design.

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## Treasures of India

Lead author

**Ela Dedhia** (College of Home Science, Nirmala Niketan)

India

Co-authors

**Parmee Dedhia** (NMIMS University)

**Kushmi Dedhia** (KJSCE, University of Mumbai)

### Materials

Raw cotton fibres; traditional hand woven, printed and embroidered cotton, wool and silk fabrics of various states of India; natural dyed cotton yarns for trimming.

### Tools

Hand spinning wheel, hand loom, map of India, sewing kit and stationery.

### Techniques

Hand spinning and hand weaving for ground cotton fabric, state wise fabric swatches stitched together which opens like a flap to see and feel each fabric, followed by collage work on topmost layer.

### Inspiration

'Treasures of India' is an artistic textile-geographical map of India inspired from 60 different rich traditional hand woven, embroidered and printed cotton and silk textiles of each state in India.

From the West: Narayan Peth, Paithani, Khan, Mushroos and Pooneri fabrics of Maharashtra; tie and dye, direct and resist block prints on cotton and silk, embroidered fabrics with cotton and metallic yarns, patchwork and Jamevar fabrics of Gujarat; tie and dye (lehria), gota embroidery, applique work, kota doria of Rajasthan.

Central: block prints on wild silks, chanderi, maheshwari of Madhya Pradesh; tribal fabrics of Chattisgarh; Tussar silk of Bihar and Jharkhand.

North: Lucknowi and Zardozi embroidery, brocades, Jamdhanis and block prints on tussar silks of Uttar Pradesh; Zardozi of Haryana; Kashmiri Embroidery of Kashmir; Phulkari embroidery of Punjab; chamba embroidery, Kulu woven and knitted shawls of Himachal Pradesh; tribal fabrics of Sikkim.

South: Pochampalis, Uppada/Jamdhanis, Madhavaram, Dharmavaram Mangalgiris, Venkatgiri, and Gadwal of Andhra Pradesh; Kasuti, Irkal, Tangail, crepe, sungadi, Valkalam and Kanjeevaram of Karnataka; woven cottons checks, stripes, dobby and jacquards designs of Tamil Nadu; cream jacquards of Kerala;

East: Pipli embroidery, Sambalpuri and Bomkai of Orissa; Kantha embroidery, Baluchari weaves, Dacca muslins, Jamdhanis of West Bengal; Mekhla Chadder in muga silk of Assam, tribal fabrics of other eastern states.

### Objective

It is functional and aesthetic for fashion and textile designers, teachers, historians and art lovers.

# Textiles exhibits

Tuesday 17 July – Thursday 19 July

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## Green design

Lead author

**Beatrice Mantyi-Ncube** (University of Swaziland)

Swaziland

### Purpose

Fashion as a language provides a platform to communicate various messages to various nations across the globe. Through modern technology and media this communication is instant and therefore can negatively or positively impact lives.

Global warming is a great concern worldwide and it calls for all nations to stand up and be counted in making every possible attempt to combat it. The 'go dazzling green' design for this wearable apparel is an attempt to sensitise people to preserve nature, a global emphasis in attempts to create a global awareness to develop capacities for sustainable futures for generations to come.

### Techniques

Draping and flat pattern making techniques were used to create the pattern. Leaf stencils of different sizes were made for the embossed velvet border and back train bow, used as a trim emphasizing the 'green design' theme.

### Materials

Velvet fabric, satin (double sided), sparkle metallic organza, all in different shades of green in support the 'green design' theme; batting, zip, thread.

# Best practice exhibits

Wednesday 18 July, 11.00am – 3.00pm

## EXHBP 1 Best practice exhibits

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### Virtual networking through Home Economics Information: [www.homeec.info](http://www.homeec.info)

Lead author **Kay York** (Park Ridge State High School/Education Queensland)

Australia

Exploring the concept of virtual networking through accessing the Home Economics Information website which I have developed to benefit home economics teachers. Discussing the reasons for its establishment, the information it contains and the formats, the membership benefits and how to network using the sites forum. It's time home economics teachers began to work smarter, looking after their wellbeing. We have been at the cutting edge of networking for years and now have come of age. It is important to share what we have developed to assist other teachers to work towards best practice. In our time-poor worlds reinventing the wheel is a waste of time. Encouraging teachers to take a look, use what is useful, adapt ideas and share back to the other members of the site. It is free to join and has a lot of quality resources already even though it has only been online since January 2011. Approximately 600 home economists from all over the world have already benefited from visiting the site. This presentation will give more the reason to visit.

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### Fotoexhibition

Lead author **Lilja Palovaara Sjøberg** (Hedmark University College)

Norway

#### Aim

The photographs are part of a larger research project with a purpose to convey cultural knowledge of a local, traditional Norwegian cheese, Pultost. The aim is to illuminate the phenomenon of Pultost, document what is happening when pupils and some younger children taste it, and find out how children communicate this.

#### Method

The approach is qualitative, examining the meaning in a social phenomenon, children tasting cheese, and to capture a large variety and nuance in this. Data was collected by participant observation, photographs and written texts. Raw data was sorted and processed, and analysed by using Gadamer's hermeneutic circle.

#### Results

Slide 2 (S2): a visualisation of the place where Pultost traditionally is produced. S3 conveys climatic conditions on the region. S4 and S5: methodological information. S6-12: pupil expressing taste of cheese. Pupils related to cheese dicotomically. This distinction was captured by observation, by photography and in text analysis. There was coherence between pupils' verbal and non-verbal communication. Pupils who related positively expressed a smile in bright eyes and relaxed posture. They recognised cheese immediately, described taste, and even the smell and texture. These pupils told in which context they had learned to eat this cheese. None of these pupils admitted that Pultost is part of their eating habits. Pupil who related negatively used a strong body language and facial expression to show their disapproval and disgust. They hesitated before tasting. It seemed that those pupils were in apprehension of great fear and they demonstrated stress. They refused to swallow a bit. These pupils had a small vocabulary when describing the cheese. None of the pupils knew what cheese is made of, or how it is made, or where it originates. S13: a baby relating neutrally to Pultost. S14 and S15: context to Pultost consumed. S16-S19: the accepting process that a child demonstrates. First, the child wanted to taste trustfully. He didn't recognise the taste, and quickly smells instinctively. He is sitting quietly and making a decision to eat. Finally he could tell what it was. S20: a few facts about Pultost.

#### Conclusion

Pupils' acceptance-rejection of Pultost is construed as a result of an individual and a collective learning process. Pultost is seen as an artifact, a medium in social interaction where cultural symbolic knowledge of food has been learned, opens for a wider pedagogical approach. It presents new tools for understanding how meaning of eating is constructed.

## Best practice exhibits

Thursday 19 July, 11.00am – 3.00pm

### EXHBP 2 Best practice exhibits

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#### Recreating textiles – recycle and reuse

Lead author **Kay York** (Park Ridge State High School/Education Queensland)

Australia

Co-author **Robyn Gooley** (Education Queensland)

To recreate fabrics from fabrics - using pieces of fabric and various colouring techniques to create fabulous colourfast fabrics simply and easily. Taking used fabrics, clothing and reenergising them to create useful and long lasting clothing and articles from textiles. This displays hands-on techniques, giving home economists practical ideas to use in the classroom with students in a textiles setting. Focusing on teaching these sustainable techniques and fostering creativity helps students to be think outside the box and foster sustainable re-use of fabrics for textile projects. We will colour samples of fabric (recycled) and make them live again as beautiful, functional modern fabrics. We can show how to create four different fabrics in a classroom setting to give teachers an insight into how easily beautiful economical fabrics can be created. During this display participants will be shown how to create their own fabrics and learn the techniques to pass on to their students.

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#### Vocational Training Program for JSS 3 students

Lead author **Nkiru Meludu** (University of Ibadan)

Nigeria

The main objective of the training program is concerned with the improvement of students' lives through vocational training. To build on what they already know, drill them in practical skills and introduce new skills to them in the areas of food and nutrition, food planning and preparation, basic stitches, making simple articles, textiles (dyeing of fabrics), good grooming, interior decoration, knitting and crocheting.

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Laird	Melissa	Australia	713	Individual paper	TEX 6	128
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Lasic	Emir	Germany	642	Individual paper	HTS 2	75
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Lee	Jae Yeon	Korea	439	Individual paper	FAM 4	108
Lee	Soohee	Korea	502	Poster	POST 3	206
Lee	Jae-Hee	Korea	526	Poster	POST 2	185
Lee	Sang Sun	Korea	535	Poster	POST 1	163
Lee	Sang Sun	Korea	536	Poster	POST 4	227
Lee	Eun-Hee	Korea	544	Poster	POST 1	164
Lee	Ki Young	Korea	560	Poster	POST 1	165
Lee	Sujin	Japan	603	Individual paper	FAM 3	79
Lee* presented by co-author Myung Sook Song	Jaerim	Korea	501	Poster	POST 2	184
Lehmongkol	Pattamavadi	Thailand	355	Individual paper	PHIL 2	46
Leicht-Eckardt	Elisabeth	Germany	68	Workshop	WS IHM	31
Leonhaeuser	Ingrid-Ute	Germany	356	Individual paper	HEA 4	88
Leslie	Catherine Amoroso	United States	71	Individual paper	TEX 6	125
Leslie	Catherine Amoroso	United States	178	Exhibit (textiles)	EXHTEX	233
Limsuwan	Tasanee	Thailand	181	Individual paper	FDN 1	34
Lindblom	Cecilia	Sweden	354	Poster	POST 4	219
Liu	Pai-Chwen	Taiwan	333	Poster	POST 2	177
Maddux	Estoria M	United States	516	Individual paper	CSD 1	12
Magnusson Sporre	Cecilia	Sweden	239	Poster	POST 2	173
Maison	Janice	Guyana	68	Workshop	WS IHM	31
Makela	Carole	United States	525	Poster	POST 2	185
Makino	Yui	Japan	312	Poster	POST 4	218
Makino	Katsuko	Japan	457	Poster	POST 3	203
Malin	Anne	Finland	461	Individual paper	HTS 1	57
Maliwichi	Lucy	South Africa	142	Individual paper	FDN 3	83
Maliwichi	Lucy	South Africa	143	Individual paper	PHIL 2	45
Mantyi-Ncube	Beatrice	Swaziland	643	Individual paper	EDU 12	131
Mantyi-Ncube	Beatrice	Swaziland	646	Exhibit (textiles)	EXHTEX	237
Masipa	Makgoshi	South Africa	703	Poster	POST 1	168
Masuda	Tomoe	Japan	280	Poster	POST 3	196
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Matsuoka	Setsuko	Japan	204	Poster	POST 3	193
Matthews	Nerida	Australia	292	Individual paper	EDU 02	14
Mberengwa	Lois	Botswana	473	Individual paper	FAM 4	109
McArthur	Jennifer	Australia	327	Individual paper	HEA 5	109
McCloat	Amanda	Ireland	424	Symposium	SYMHEA 2	30
McCloat	Amanda	Ireland	304	Workshop	WS CSD	59
McCloat	Amanda	Ireland		Keynote plenary	WED 18 (YPN)	3
Mckenzie	Heather	Australia	537	Workshop	WS EDU 2	77
McPhee	Hannah	Australia	429	Workshop	WS EDU 1	10
Mehta	Mansi	India	56	Individual paper	FAM 1	43
Meludu	Nkiru	Nigeria	412	Individual paper	HEA 3	69
Meludu	Nkiru	Nigeria	647	Exhibit (best practice)	EXHBP 2	239
Mendenhall	Juanita	United States	381	Workshop	WS PHIL	116
Mercer-Grant* presented by co-author Susan Brumby	Cate	Australia	689	Individual paper	HEA 3	70
Meszaros	Peggy	United States	46	Individual paper	EDU 14	143
Mikami	Ayako	Japan	94	Individual paper	HTS 3	132
Miyano	Michio	Japan	291	Symposium	SYMHEA 3	58
Miyazawa	Makiko	Japan	532	Poster	POST 3	207
Mohamed	Isameldin	United Arab Emirates	690	Poster	POST 4	231
Morita	Misa	Japan	543	Individual paper	FAM 3	78
Moriyama	Michie	Japan	185	Poster	POST 2	172
Mundkur	Suman	India	629	Individual paper	TEX 2	51
Murakami	Kaori	Japan	317	Poster	POST 1	155
Muramoto	Yukari	Japan	320	Poster	POST 2	176
Murata	Junko	Japan	396	Poster	POST 2	179
Muro	Masako	Japan	403	Poster	POST 4	221
Nagano	Hiroko	Japan	367	Poster	POST 2	178
Nagao	Keiko	Japan	330	Poster	POST 4	219
Nagata	Haruko	Japan	484	Poster	POST 2	183
Naka	Kazuki	Japan	426	Poster	POST 2	180
Nakatani	Natsuko	Japan	557	Individual paper	FAM 2	63
Nakayama	Setsuko	Japan	289	Individual paper	EDU 10	105
Ngo	June	Malaysia	455	Individual paper	PHIL 2	47
Niehof	Anke	Netherlands	666	Symposium	SYMMDG 1	9
Nishimoto	Yukiko	Japan	258	Poster	POST 4	215
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Nonaka	Mitsue	Japan	437	Poster	POST 1	160
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Norton	Jane	Australia	676	Poster	POST 2	190
Norum* presented by co-author Jung Ha-Brookshire	Pamela	United States	219	Individual paper	TEX 2	49
Nosheen	Farhana	Pakistan	52	Individual paper	EDU 06	65
O'Donoghue	Miriam	Ireland	304	Workshop	WS CSD	59
Obeta	Anthonia	Nigeria	411	Individual paper	CSD 1	11
O'Brien	Nora	Ireland	417	Individual paper	HEA 1	20
Odamaki	Yoshiko	Japan	279	Exhibit (textiles)	EXHTEX	234
Ohara	Kazuoki	Japan	575	Poster	POST 2	188
Oi	Ayako	Japan	617	Poster	POST 1	167
Ojukwu	Vivian	Nigeria	38	Individual paper	FDN 1	32
Okada	Miyuki	Japan	293	Poster	POST 1	154
Okamoto	Yoko	Japan	328	Poster	POST 3	198
Okazaki	Akiko	Japan	349	Poster	POST 3	199
Okuda	Shino	Japan	235	Poster	POST 4	214
Okutani	Megumi	Japan	418	Poster	POST 4	222
Olugbamigbe	Abigail	Nigeria	114	Individual paper	CSD 1	11
Olumakaiye	Motunrayo	Nigeria	256	Individual paper	FDN 1	35
Omori	Katsura	Japan	323	Poster	POST 1	156
Omote	Mami	Japan	361	Symposium	SYMHEA 2	29
Onbun-uea	Angkhana	Thailand	275	Individual paper	EDU 11	118
Ong	Chiew Inn	Singapore	59	Individual paper	EDU 09	80
Onkoo	Rhee	Japan	345	Poster	POST 2	178
Osman	Syuhaily	Malaysia	201	Individual paper	CSD 4	114
Ossai	Ruth Ukamaka	Nigeria	120	Individual paper	EDU 06	66
Otake	Midori	Japan	291	Symposium	SYMHEA 3	58
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Otake	Midori	Japan	666	Symposium	SYMMDG 1	9
Owodiong-Idemeko	Boiso	Nigeria	587	Poster	POST 3	209
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Oyewole	Mojisola Fauziyah	Nigeria	300	Individual paper	HEA 3	68
Paas	Kristi	Estonia	605	Individual paper	EDU 04	54
Pakula	Christiane	Germany	341	Individual paper	HTS 3	134
Palovaara Soberg	Lilja	Norway	672	Exhibit (best practice)	EXHBP 1	238
Park	Yongsoon	Korea	347	Poster	POST 1	157
Park	Mee Sok	Korea	548	Poster	POST 3	208
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Persens* presented by co-author Judith Cornelissen	Marissa	South Africa	634	Poster	POST 4	230
Petersson	Monica	Sweden	371	Individual paper	EDU 12	129
Pettigrew	Rachael	Canada	640	Individual paper	FAM 3	80
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Piscopo	Suzanne	Malta	616	Symposium	SYMHEA 2	30
Plata-Amarillas	Santiago Alonso	Mexico	78	Individual paper	HTS 1	55
Poirier	Sandra	United States	57	Individual paper	CSD 2	36
Pontinen	Silpa	Finland	602	Individual paper	EDU 07	67
Puri	Seema	India	60	Poster	POST 1	148
Puri	Seema	India	68	Workshop	WS IHM	31
Rai	Inderpal	India	96	Individual paper	TEX 5	103
Raijas	Anu	Finland	353	Symposium	SYMFAM 4	76
Raisanen	Riikka	Finland	99	Individual paper	TEX 2	48
Rege	Kamini	India	41	Individual paper	EDU 06	64
Rege	Kamini	India	55	Individual paper	FAM 1	42
Reynolds	Janet	Australia	552	Individual paper	EDU 08	90
Reynolds	Janet	Australia	553	Individual paper	EDU 12	130
Reynolds	Janet	Australia	429	Workshop	WS EDU 1	10
Reynolds	Janet	Australia	608	Symposium	SYMEDU 7	135
Ritchie	Barbara	Australia	339	Individual paper	HEA 6	141
Ru	Ya	Japan	226	Poster	POST 4	214
Rupiper	Michelle	United States	140	Individual paper	EDU 11	117
Saarilahti	Marja	Belgium	376	Individual paper	FAM 2	63
Saarilahti	Marja	Finland	364	Symposium	SYMFAM 5	95
Sabri	Mohamad Fazli	Malaysia	149	Individual paper	CSD 2	38
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Saito	Etsuko	Japan	172	Individual paper	FAM 3	78
Salo-Mattila	Kirsti	Finland	89	Individual paper	TEX 3	60
Sarai	Vulori	Fiji	584	Individual paper	EDU 08	90
Sarai	Vulori	Fiji	595	Individual paper	BUS 1	102
Sarai	Vulori	Fiji	666	Symposium	SYMMDG 1	9
Sasai	Kei	Japan	291	Symposium	SYMHEA 3	58
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Shrestha	Manita	Japan	416	Individual paper	HTS 3	134
Sikhiram	Narong	Thailand	589	Individual paper	HEA 2	27
Simcic	Irena	Slovenia	715	Workshop	WS OUT	135
Singhee	Deepali	India	631	Individual paper	TEX 4	93
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Son	Mi Young	Korea	348	Individual paper	TEX 2	50
Son	Soehee	Korea	174	Symposium	SYMFAM 6	115
Song	Myung Sook	Korea	528	Poster	POST 4	226
Soti	Moemoe	Samoa	712	Individual paper	EDU 04	55
Steinel	Margot	Germany	161	Poster	POST 2	171
Steinel	Margot	Germany	164	Individual paper	IHM 1	123
Steyn	Hester	South Africa	318	Individual paper	HTS 4	146
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Sulaiman	Norhasmah	Malaysia	171	Individual paper	FDN 3	83
Sulonen	Katriina	Finland	218	Individual paper	EDU 04	52
Sung	Miai	Korea	407	Poster	POST 1	158
Surana	Nishi	Swaziland	68	Workshop	WS IHM	31
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Thompson	Dorothy	Nigeria	129	Individual paper	TEX 3	60

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Tran	Lorraine	Australia	450	Individual paper	EDU 12	129
Tripp	Paula	United States	512	Individual paper	EDU 03	25
Tsuchiya	Yoshikazu	Japan	261	Poster	POST 3	195
Tully	Laurel	Australia	537	Workshop	WS EDU 2	77
Tung	Yi-Cheng	Taiwan	223	Poster	POST 1	153
Turkki	Kaija	Finland	64	Individual paper	PHIL 1	16
Turkki	Kaija	Finland	364	Symposium (discussant)	SYMFAM 5	95
Ueno	Akiko	Japan	246	Individual paper	FAM 2	62
Urda* presented by co-author Usha Chowdhary	Malorie	United States	699	Poster	POST 4	232
Valkeapää	Helena	Finland	231	Individual paper	FAM 4	107
Van Zyl	Sonia	South Africa	340	Individual paper	HTS 2	74
Van Zyl	Sonia	South Africa	463	Individual paper	HTS 4	146
Varjonen	Johanna	Finland	364	Symposium	SYMFAM 5	95
Vassallo	Jody	Australia		Keynote plenary	FRI 20	7
Verain	Muriel	Netherlands	478	Individual paper	EDU 05	40
Verain	Muriel	Netherlands	494	Individual paper	CSD 5	137
Vermaas	Jana	South Africa	43	Individual paper	TEX 4	92
Verstraeten	Gabriella	Australia	156	Individual paper	TEX 6	126
Verstraeten	Gabriella	Australia	159	International collaboration	WS INT	96
Vidgen	Helen	Australia	678	Individual paper	FDN 2	73
Villalon	Lita	Canada	430	Poster	POST 4	223
Vincenti*	Virginia	United States	644	Individual paper	CSD 1	12
presenting with co-author Karen Goebel						
Wang	Feixue	Japan	103	Poster	POST 4	212
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Warner	Elyse	Australia	284	Individual paper	FAM 1	44
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Warnock	Mary	United States	381	Workshop	WS PHIL	116
Washi	Sidiga	United Arab Emirates	111	Individual paper	IHM 1	122
Washi	Sidiga	Sudan	666	Symposium	SYMMDG 1	9
Watase	Noriko	Japan	402	Poster	POST 3	201
Wei	Hsiuchen	Taiwan	623	Individual paper	FAM 2	64
Woods	Barbara	United States	134	Individual paper	PHIL 1	16
Woolcock	Cam	Australia	62	Individual paper	IHM 1	122
Wooten Swanson	Patti	United States	656	Poster	POST 3	210
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Yamauchi	Tomoko	Japan	476	Poster	POST 2	182
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Yanai	Taeko	Japan	211	Poster	POST 3	194
Yang	Eunyoung	United States	508	Individual paper	TEX 3	61
Yasuoka	Ayako	Japan	362	Poster	POST 1	157
Yates	Marilyn	Australia	608	Symposium	SYMEDU 7	135
Yates	Marilyn	Australia	612	International collaboration	WS INT	98
York	Kay	Australia	303	Exhibit (best practice)	EXHBP 2	239
York	Kay	Australia	561	Exhibit (best practice)	EXHBP 1	238
Yoshida	Keiko	Japan	404	Poster	POST 4	222
Yoshimura	Yumi	Japan	489	Poster	POST 1	162
Young	Maria	United States	203	Individual paper	PHIL 2	46
Yukawa	Natsuko	Japan	562	Poster	POST 2	187
Yumiko	Uchiyama	Japan	310	Poster	POST 2	175
Zhang	Xiumin	Japan	86	Poster	POST 1	149
Zwane	Pinkie	Swaziland	88	Individual paper	TEX 5	103