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FOR HOME ECONOMICS**



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Donna Pendergast

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Publication in IJHE provides wide exposure to journal articles and adds to the professional literature base of the field. Theoretical papers, literature reviews, and a wide range of genres along with research papers are invited for publication in the journal. As editor, I strongly encourage submissions to the journal. The papers included in this issue demonstrate the diversity of the field, ranging from social inequality and dietary diversity to curriculum development, professional learning and professionalism and a wide spectrum of other facets of the field.

All papers in this issue of the journal are refereed and hence have undergone rigorous, double-blind review, and are adding to the professional literature base of the field.

Professor Donna Pendergast, PhD  
Editor, IJHE

**Call for papers:  
Teaching and learning in Home Economics education**

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The official journal of the International Federation for Home Economics (IFHE) is a refereed e-journal that brings together emergent and breaking work on all aspects of Home Economics, and most importantly, how we might improve and renew the everyday work of Home Economists. It features quantitative and qualitative, disciplinary and trans-disciplinary, empirical and theoretical work and includes special editions on key developments. It aims to push the boundaries of theory and research—to seek out new paradigms, models and ways of framing Home Economics. The International Journal of Home Economics welcomes contributions from members and non-members, from a variety of disciplinary and theoretical perspectives.

**Special Issue December 2017**

**Teaching and Learning in Home Economics Education**

Guest editors: Hille Janhonen-Abreuquah, Hanna Posti-Ahokas & Päivi Palojoki,  
University of Helsinki, Finland

The special Issue focuses on pedagogical approaches related to Home Economics Education. The aim of the articles is to inspire researchers', lecturers' and teachers' pedagogical thinking and lead into new educational innovations which in turn will equip Home Economics education to respond to the challenges of changing society. Privilege is given to articles focusing on pedagogical interventions and teaching experiments in various learning contexts. Cross-national authorship is encouraged.

**Timeline for Special Issue**

Call for abstracts (500 words)	30 November 2016
Acceptance of abstracts (editors will notify the authors)	15 January 2017
Full manuscripts (max 6000 words)	31 March 2017
Review process (external review process)	April-June 2017
Revised manuscripts due	31 August 2017
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## Washback effects and cognitive demand analysis of homework practice in Home Economics

Freda Byrne, Kathryn McSweeney, John Gardner

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### Abstract

*The focus of this paper is an examination of the learning value of homework understood from the perspective of teachers in relation to their homework practice alongside a cognitive demand analysis of different types of assigned homework. A mixed method approach was used involving interviews with ten Home Economics teachers and content analyses of over 400 homework questions and tasks from Home Economics textbooks, examination papers and teachers' assigned homework. The results indicate that, in the main, Home Economics homework questions demand the recall and understanding of conceptual and factual knowledge, thus reducing the capacity for the development of higher order thinking skills. In addition, there is evidence of a 'washback' effect on pedagogy in which teachers tend to concentrate their teaching on supporting test-taking. Such a situation bodes ill for the quality of student learning and points to a clear need for teacher professional development in the area of assessment design.*

**Keywords:** Homework, assessment design, higher order thinking skills, washback, Home Economics

### Introduction

The secondary education system in the Republic of Ireland comprises two cycles: a lower secondary phase known as the Junior Cycle (generally 12-15 year olds), which leads to Junior Certificate examinations, and an upper secondary phase known as the Senior Cycle (generally 16-18 year olds), which finishes with Leaving Certificate examinations. The latter is for many young people the entry-level examinations for universities and as such is often described as *high stakes*. Home Economics features as an optional choice for students in both cycles: as an elective subject in Junior Cycle and as an option in one of the five subject groups in Senior Cycle. Learning and teaching in both cycles is generally of the mode common throughout education globally: teachers facilitating learning in school hours and students following up with independent extension studies outside of school, the latter often by means of what is widely termed *homework* set by their teachers.

Homework in Ireland is an important part of the daily routine of students. According to Smyth, Banks and Calvert (2011, p. 226), at Senior Cycle, four or more hours of out-of-school time per night is devoted to its completion by 40% and 30% of female and male students respectively. A National Council for Curriculum and Assessment (NCCA) study of 600 secondary student experiences in 12 case study schools has also revealed that two thirds of the students were positive about assessment and reported that homework "makes them learn" (NCCA,

2006, p. 10). However, whilst the students reported that they invested time in tasks they perceive to be “a productive type of learning”, many viewed homework tasks as “rote in nature” and not an enhancement to learning (p. 10). Insights into these issues have been reported by the government’s Inspectorate for schools, and especially the specialist Home Economics subject inspectors (Department of Education and Skills [DES], 2008, p. 37) who asserted that there was “scope for development” in homework practice in one third of the schools they inspected during 2008. More than half of the Home Economics inspectors’ reports (DES, 2008) identified the majority of homework tasks as being “of the lower-order variety” (p. 38). The set tasks almost exclusively comprised short-answer questions drawn from examinations, with less emphasis on the types of long questions that could develop analytical skills. Set against the literature backdrop, which indicates that both students and inspectors perceive homework practices to be problematic, the current study was designed to examine the quality of assigned homework empirically in terms of the challenge inherent within homework tasks. The essential question is posed: what contribution does homework make to student learning?

### **What is the purpose of homework?**

To examine the contribution that homework makes, it is necessary to have a clear view of what homework is. A simple definition might be that homework is any activity that students are asked to do in their own time; a more thorough answer would categorise the design (scope and scale in relation to the curriculum, type of question, etc.) and intended purposes of the set work. It is partly these aspects that the current study has attempted to address.

Homework tasks can be directly related to class work usually in the form of questions to which students prepare answers, and it may be submitted for teacher assessment in class or outside of class time. Generally the intended purpose of homework tasks is the improvement of learning. The Home Economics inspectors (DES, 2008), for example, noted the role of homework in reinforcing classroom learning and in providing opportunities for the development of independent learning and research skills. The academic literature echoes this view with Danielson, Strom and Kramer (2011), Epstein and Van Voorhis (2001), and Muhlenbruck, Cooper, Nye and Lindsay (2000) arguing that homework serves purposes such as practising skills, preparing for future lessons and acting as an extension to the classroom by allowing students to develop independent learning opportunities. However, homework for practising skills has been criticised by some, for example, Cooper (1989) and Heltzmann (2007), because of its potential to encourage rote learning. There is some warrant for this view in Ireland with writers such as Hyland (2011) arguing that there is an “over-emphasis on rote-learning and not sufficient emphasis on the application of knowledge” in the current Irish educational system (p. 8).

It is widely believed (see, for example, Black & William, 1998; Hughes & Greenhough, 2004; Warton, 2001) that a teacher’s choice of homework significantly influences students’ learning. Teachers often model their own assessments on national tests, to enable the students to practise for them, and the 2008 Inspectorate report (DES, 2008) confirmed that at Senior Cycle in Ireland, there is greater emphasis on “providing students with lots of practice” (p. 38). During 2013-2014, the State Examinations Commission (SEC) in Ireland commissioned an independent external report on predictability in the Irish Leaving Certificate

(Baird, Hopfenbeck, Elwood, Caro, & Ahmed, 2015). Their report on six subjects other than Home Economics, indicates that “in keeping with high-stakes testing situations in other countries, teachers prepared their students by tutoring them on the subject broadly and through specific test preparation” (p. 22). In their view, the students had a lot of “test-wiseness” (p. 22). They acknowledged the inevitability of “highly strategic ... behaviours by students and teachers who want to get the best results” in a high-stakes examinations system (p. 28) but concluded, much as Hyland (2011) above had done earlier, that “consideration should be given to placing more emphasis upon the assessment of higher order thinking skills in the examinations” (p. 27). They argued that placing greater emphasis upon the assessment of higher-order thinking skills in examinations may “need a more fulsome consideration due to the culturally embedded nature of assessment systems” (p. 27).

Where school assessments, including those relating to homework, are modelled on external assessments, the learning value may therefore be compromised because the examination system is considered by many, such as Hyland (2011), to be “harmful to the quality of learning” achieved overall (p. 6). The effect of narrowing the curriculum that is due to frequent teaching to the examination, rather than the aims of the curriculum, has been widely criticised, especially over the last two decades, by such bodies as the European Commission, the Education, Audiovisual and Culture Executive Agency (EACEA) and Eurydice (2012), the National Council for Curriculum and Assessment (NCCA, 2012) and the OECD (2005); and researchers such as Stobart (2008), Looney (2006), Harlen and Deaken Crick (2002) and Hyland (1999).

Hyland’s (2011) paper provides anecdotal evidence of a system that is no longer “fit for purpose” as it neglects the development of capabilities and dispositions of students by rewarding rote learning, instrumental learning and memorisation (p. 7). It is interesting to note how enduring this problem is as Madaus and MacNamara (1970), in their analysis of the then Leaving Certificate examinations, reported frequent prediction of examination questions and memorisation of answers by students. In their view, the syllabuses emphasised content to the detriment of skills and “intellectual functioning” (p. 135):

For too long the cart has been before the horse; final marks (i.e., the marks achieved in final examinations) have been treated by society as the ultimate goal of education. Intellectual curiosity, the joy of discovery, involvement in intellectual issues—in a word, all these activities and responses which contribute to true learning have been subordinated to, often sacrificed to, a public examination.

Traditional classroom pen and paper assessment practices have also received criticism for failing to capture much of students’ learning. Hyland (2000, p. 57) reports that in:

... many schools, student work is disposable. Teachers give assignments. Students hand in the work. It is graded, returned, glanced at, and all too often forgotten, lost or thrown in a box never to be looked at again.

Similarly, Black and Wiliam (1998) point to short-comings in everyday assessment practice in classrooms. They argue that questions are not critically reviewed in relation to what they actually assess and that “the quality of test items, i.e., their relevance to the main learning aims ... need scrutiny” (p. 12). They state that “good questions are hard to generate and teachers should collaborate, and draw—critically—on outside sources, to collect such questions” (p. 12).

As mentioned above, the 2008 inspectors’ report highlighted the fact that the majority of questions assigned for homework at second level require lower order thinking, and that teachers could be “expanding the range of questions used ... to support students in the development of higher order thinking skills” (DES, 2008, p. iii). It was common for teachers to use tasks in the students’ textbooks as homework, and “in most instances, students transcribed the answers directly from the textbook” (p. 38). Clearly this was not regarded as good practice by the inspectors who argued that copying or transcribing reduces “learning potential, including opportunities for independent research” and “real learning” (p. 38). There is therefore a need to review the contribution of homework questions to the development of higher-order thinking.

Arguably, in a high stakes examination system, teachers who view homework as a means of increasing student attainment can assign too much homework which may result in demotivated students who are encouraged to copy homework. Smyth, Banks, Darmody and McCoy (2007) in their report on the experience of Junior Cycle students noted the frequent practice of students transcribing answers from textbooks. For example, one student in their study commented “you just write it out from the book, you don’t think about it” (p. 109). In another dimension of the impact of such practice, Conner, Pope and Galloway’s 2010 study of US students (n = 3,645), drew attention to the negative effect of such lower order homework on student engagement and motivation—a serious *washback* effect of bad practice on learning. They reported that the students can view practice homework as boring, if they are often required to transcribe information from textbooks, in a manner that is repetitive and disconnected from daily living. The majority of second level students in their study were “frustrated by tedious assignments and work that holds little meaning for them” (p. 5).

Findings in the Irish context corroborate these views. For example, Junior and Senior Cycle students (Smyth et al., 2007; Smyth et al., 2011) reported feeling *overwhelmed* as homework can be assigned “in considerable amounts”. Smyth et al. (2011) reported that the majority (63%) of all final year students felt that they were getting more homework in their final year compared to the year before and that it was “even harder” and “took up more time” (p. 72). The students reported that they were trying to achieve a balance between study and homework and they seemed to view these practices as competing for time rather than being complementary activities. Smyth et al. (2011) concluded that the consequence of assigning vast quantities of time consuming and often monotonous homework is that students can respond by developing an instrumental approach to the completion of homework. Such practices can also negatively impact on the quality of learning achieved. According to Warton (2001), homework is a “multi-faceted process” involving “a complex interplay of factors in two contexts—home and school” that can often be a “source of considerable difficulty and conflict at home and school” (p. 155). Cooper (1989) identified some of these difficulties as

physical and emotional fatigue, loss of interest and restrictions on leisure time. He argued that student frustration, procrastination and noncompliance are problems frequently associated with homework.

### **Focus of the study**

Clearly homework assessment practice is problematic and in some circumstances can have the potential for shortcomings such as inappropriate question designs, and responses to tasks that lack clear benefit for student learning. Warton (2001) argues that there is a dearth of research focusing on the nature of the link between the type and quality of homework and achievement outcomes. The current study sought to help address this deficit by examining several key questions namely:

1. **What are Home Economics teachers' views about homework practice?** The aim was to explore whether there is any congruence between Home Economics teachers' beliefs about homework assessment and their teaching.
2. **What factors influence the teachers' choice and design of homework?** The aim was to explore the factors influencing the assessment design process and how optimum learning may be achieved
3. **What is the learning value of a sample of homework questions and tasks?** The aim was to explore a large sample of homework tasks to assess their potential to promote the development of higher order thinking skills.

### **Methods**

#### **Data collection**

A mixed methods approach involving inquiry (interviews) and empirical content analysis of items was adopted and the research was conducted in two phases over a one year period. Phase 1 involved interviews with ten Home Economics teachers about their homework assessment decisions and design practices. The teachers were selected from a range of nine schools located in the south-east, east and midlands of Ireland and their teaching experience varied from 6 to 37 years. Each teacher was teaching Senior Cycle Home Economics and preparing students for the high stakes Leaving Certificate examination at the time of interview. The interview schedule was constructed around the first two questions above: teachers' views about homework, homework design and homework practice. Clearly this small sample can help to illuminate some of the issues impacting on Home Economics educational practice, but its limitations in representing the views of the wider body of Home Economics teachers in Ireland must be duly recognised.

Phase 2 involved content analyses of 444 homework tasks and questions including questions from Leaving Certificate examination papers (n = 237) and coursework tasks (n = 52) (SEC, 2012a, 2012b, 2011a, 2011b), popular Home Economics textbooks (Conway & Freeborn, 2006; Jones, 2007) (n = 100) and three of the teachers' assigned homework questions (n = 55). Although not homework per se, the analysis of examination and textbook questions was

justified as the interviews and the literature review, for example, DES (2008), Hyland (2011), and North and Pillay (2002), revealed that such sources are frequently used for setting homework tasks. Random sampling was applied when choosing the questions to analyse from textbooks. The teachers were chosen, with their agreement, on the basis of their varied use of homework practice and the homework they set over a one-week period was selected for analysis.

### Data analysis and reporting

The analysis and interpretation of data was based on a thematic content analysis approach (Miles & Huberman, 1994). Large volumes of qualitative data (the interview responses) were reduced to manageable levels that could enable meaningful findings to be identified and this was accomplished by collating the various perceptions of the teachers on themes related to homework per se, homework design and homework practices.

The data from Phase 1 was complemented by the content analyses of the selected homework tasks in Phase 2 and these results enabled the validation of findings from Phase 1. The conceptual framework informing the research was the Taxonomy Table (Anderson et al., 2001), an enhancement of Bloom's Taxonomy (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956). Criticisms of Bloom's Taxonomy include its arguably simplistic reduction of learning outcomes to a set of discrete processes (e.g., remembering or analysing) and its problematic linear-like progression through a hierarchy of processes. Anderson's Taxonomy Table arguably suffers from the same weaknesses, when attempting to categorise learning and its outcomes, but it does introduce a degree of increased sophistication with a two-dimensional analytical framework. This comprises two sets of defined categories, knowledge dimensions and cognitive processes, which then define expectations for student learning. Anderson et al. (2001) explain how teachers begin an "analytic journey from the statement of an objective to its placement in the Taxonomy Table" (p. 31). The analytic journey involves the examination of the verb or command word in the learning outcome, assessment objective, or question in the context of the six categories of the Cognitive Process Dimension:

1. Remember
2. Understand
3. Apply
4. Analyse
5. Evaluate
6. Create

and the examination of the noun (subject of the verb) in the context of the Knowledge Dimension:

- a. Factual Knowledge
- b. Conceptual Knowledge
- c. Procedural Knowledge
- d. Meta-cognitive Knowledge.

A typical illustration of the framework is offered in Table 1 and the following items exemplify the types of homework assignment item categorisations (note that the fourth example is a complex compound assignment that fits in at least two cells):

- Remember x Factual: *List* (verb) *three benefits of food additives* (noun subject clause)
- Understand x Conceptual: *Discuss* (verb) *the importance of care labels on textiles* (noun subject clause)
- Analyse x Conceptual: *Distinguish* (verb) *between oxidative and hydrolytic rancidity* (noun subject clause)
- Understand x Conceptual and Analyse x Conceptual: *Compare* (verb) and *contrast* (verb) *rough puff pastry and choux pastry* (noun subject clause) *having regard to* (verb clause) *their uses in sweet and savoury dishes* (noun subject clause)

The cognitive demand analysis for each homework item is essentially arrived at through a cross tabulation using the two axes of Table 1.

Table 1 Typical illustration of Anderson et al. (2001) Revised Bloom's Taxonomy

Knowledge Dimension	Cognitive Process Dimension					
	Remember	Understand	Apply	Analyse	Evaluate	Create
Factual						
Conceptual						
Procedural						
Meta-cognitive						

## Findings

### Teachers' views about homework

Overall, the teachers described good quality homework as work that is regularly assigned, has clear expectations, prepares students for examinations, provides students with prompt meaningful feedback and challenges students to think. The teachers' views concurred with findings from the literature that homework can have a positive effect on learning (see for example, DES, 2008; Smyth et al., 2007; North & Pillay, 2002; Cooper & Valentine, 2001; Epstein & Van Voorhis, 2001; Warton, 2001). Seven of the ten teachers reported that they implement an assessment for learning approach when giving feedback on homework tasks. For example, one of them noted that "saying to a student: 'you will have to improve' is a bit of a useless comment. They have to know how they can do it."

Many perceived that coursework was the most positive feature of the Home Economics Leaving Certificate programme, as it requires students to display higher order thinking skills of analysis and evaluation, which they believed examination questions rarely did. All of the teachers felt that the majority of students viewed homework negatively with comments such as: "I think they see it as a chore", "the vast majority of them don't value it" and "some I'd say consider it as punishment, almost that you were just being mean." They all took the view that students strongly prefer productive homework over homework that is rote in nature or that does not enhance learning. It is reasonable to conclude, therefore, that the value of homework to students is dependent on the appropriateness of the design and its contribution to student learning.

### Homework design

None of the teachers reported receiving training in the design of assessment in their undergraduate education or professional development. All considered that if they were more knowledgeable about assessment design practices, their homework would have the potential to enhance students' learning greatly. They all believed that homework should be planned in advance of lessons, "rather than being ad-hoc at the end of class" and that creating challenging homework is important. However, considerable variation existed in the time set aside by the teachers for planning homework. In a clear example of espoused versus actual practice being different, two of them revealed never planning homework in practice and another six considered it to be a last minute activity. They explained that the lack of time was the reason for homework planning being incomplete or absent, indicating that homework planning was an "after-thought" or "a last minute process, which takes a back seat to everything else." Additionally, the majority of teachers stated they did not consider learning outcomes when planning homework, confirming Black and Wiliam (1998) concern about the lack of alignment between question design practices and overall learning aims.

### Homework practice

The teachers commented that additional time was required to differentiate homework activities. They acknowledged the potential of coursework questions to generate higher order thinking, but eight of the teachers held strong views about the powerful influence of the national tests (Leaving and Junior Certificate examinations) on their practice. One teacher expressed the view that examinations require students to put information "back down on paper" rather than think and that for this reason, recall questions are frequently assigned for homework. Another reported that students invest considerable class and homework time practising examination questions, "going over and over and over examination questions". Expressing the belief that Senior Cycle Home Economics "is all focused around the examination", rather than the subject aims and mission, one teacher felt that the narrow focus of sourcing homework from examination material had made learning disconnected from the students' lives. These responses speak to a clear washback effect in which the priority of future examination performance flows back to impact negatively on pedagogy, in this case limiting the design of classwork and homework to examination-oriented tasks and questions.

### Content analyses of homework questions

The analysis of the examination questions and coursework tasks, textbook questions and teachers' homework questions involved the classification of the knowledge dimension and cognitive processes set out in Table 1, the determination of the frequency of each question type and the categorisation of questions as lower order or higher order in cognitive demand. A systematic process involving several readings of each question was employed to enhance validity and every item was entered into its appropriate cell or in some cases more than one cell if the more complex verb/noun pairings demanded it. For example, a relatively simple item asking candidates to *name* or *give details of* usually requires the student to recall some factual knowledge and therefore falls into the *remember x factual* cell. To enhance the interpretation of the type of cognitive processing required by the items, the State Examination Commission (SEC) explanation of typical command words associated with the cognitive domain was taken into account during the analysis (SEC, 2007).

Inevitably, some of the command words in more sophisticated items appeared in two cells of the table: for example, *describe* under *knowledge and comprehension*; or *compare and contrast* under the process of *analysis* and *evaluation* (SEC, 2007, pp. 50, 98). This is to be expected when some types of ability involve compounding attributes. For example, the SEC suggests that “evaluative assessment involves the ability to compare and contrast, criticise, critique, defend or judge” (SEC, p. 50). This multi-context usage presents a difficulty for analysis, but was overcome by using a systematic process that involved several readings of each question. It was also important to comprehend specifically what action was required of the candidate in the context of the stated question. The cell analysis for all items was coded and recorded in a spreadsheet and the overall frequency of each type of cognitive demand was calculated and classified as higher order (involving analysing, evaluating or creating) or lower order (remembering, understanding and applying). It is prudent to note at this point that a known weakness of the taxonomies (Bloom et al., 1956; Anderson et al., 2001) is that a linear hierarchical differentiation of the cognitive processes is problematic, for example, arguably there will be instances in which analysis is a relatively perfunctory task whilst understanding the basic principles in the same contexts might be quite challenging.

The findings of the content analysis of a sample of examination questions ( $n = 237$ ) are illustrated in Figure 1 and show that an average of 92% of questions were lower order in demand with only 8% of questions demanding higher order skills of analysis, evaluation and creation. The questions mostly demand understanding and recall of conceptual knowledge (38% and 22.5% respectively), followed by the recall of factual knowledge (20%).

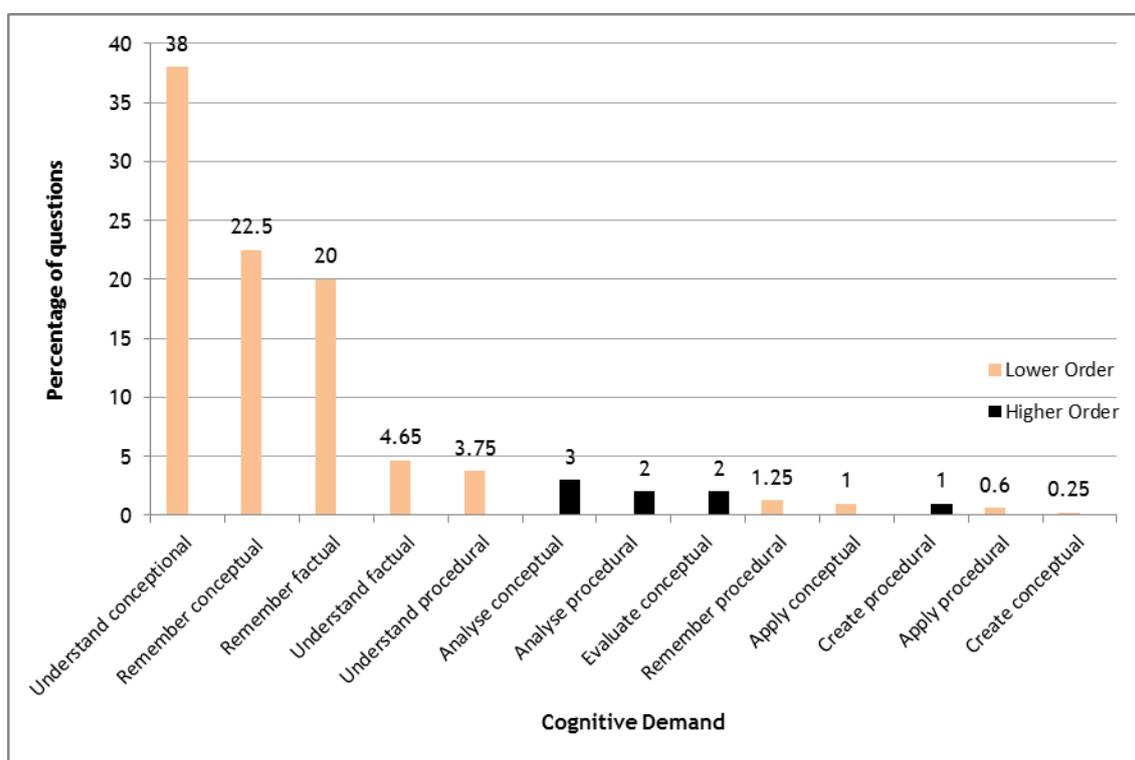


Figure 1 Cognitive demand of Leaving Certificate Home Economics examination questions, 2011-2012

The analysis suggests that there is a considerable difference in the level of demand required of examination and coursework questions in Home Economics. On average, 50.5% of a sample of coursework tasks examined (n = 52) (SEC, 2011c, 2012c) require the demonstration of higher order thinking (see Figure 2). There is a variety of questions used, with large proportions demanding analysis (22.5%) and understanding (21.5%) of conceptual knowledge. As expected in a practical subject, the recall of procedural knowledge is also reflected in a relatively high proportion of items (16.5%) and the importance of evaluation as an inherent component of practical tasks is also evidenced (15.5%). Students are often required to demonstrate their ability to apply procedural knowledge creatively and to develop solutions informed by conceptual knowledge and this was reflected in 5.5% of the tasks. It was interesting to note that with the coursework component being worth 20% of the Senior Cycle assessment, the combination with the written examination component gives an average of 83.5% of lower order questions in the assessment overall.

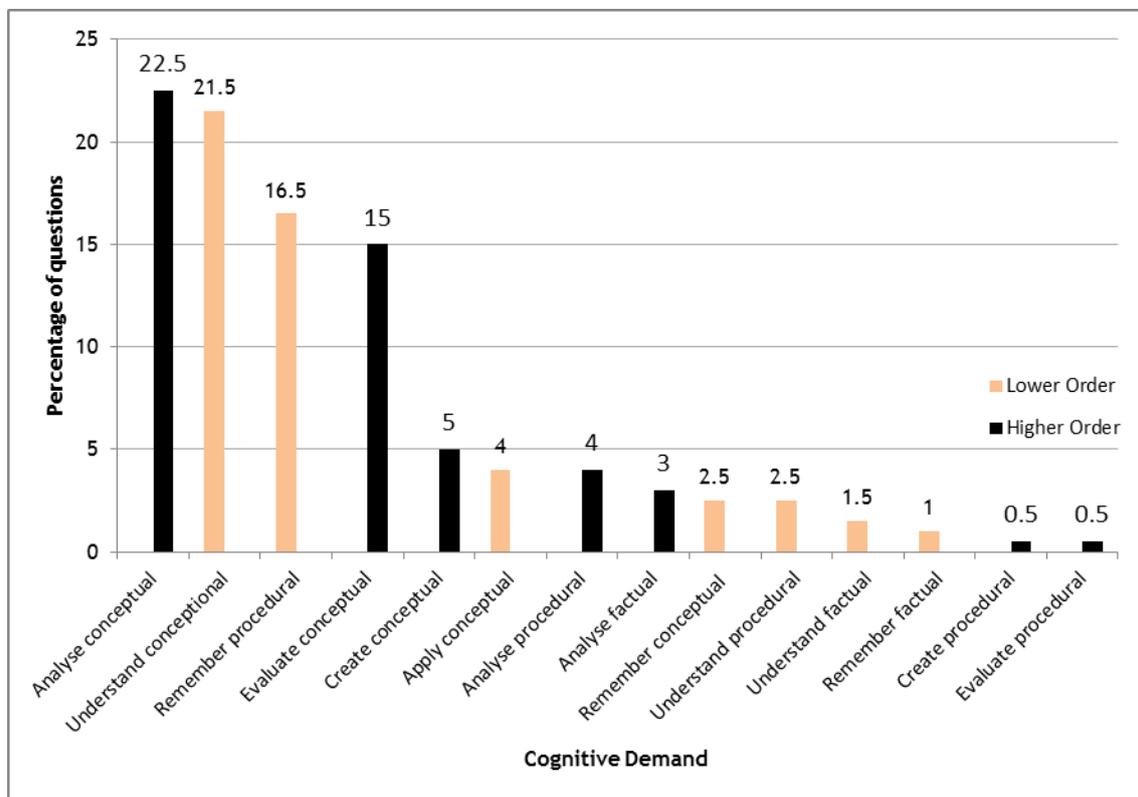


Figure 2 Cognitive demand of Leaving Certificate Home Economics coursework questions, 2011-12

The teachers revealed that 60% of assigned homework was sourced from textbooks, lending support to the earlier Inspectorate observation (DES, 2008) that there was frequent use of textbook questions in Home Economics classrooms. For this reason the study included an analysis of the cognitive demand of a sample of textbook questions. The results are presented in Figure 3 and they suggest that 95% of textbook questions (n = 100) were lower order in cognitive demand.

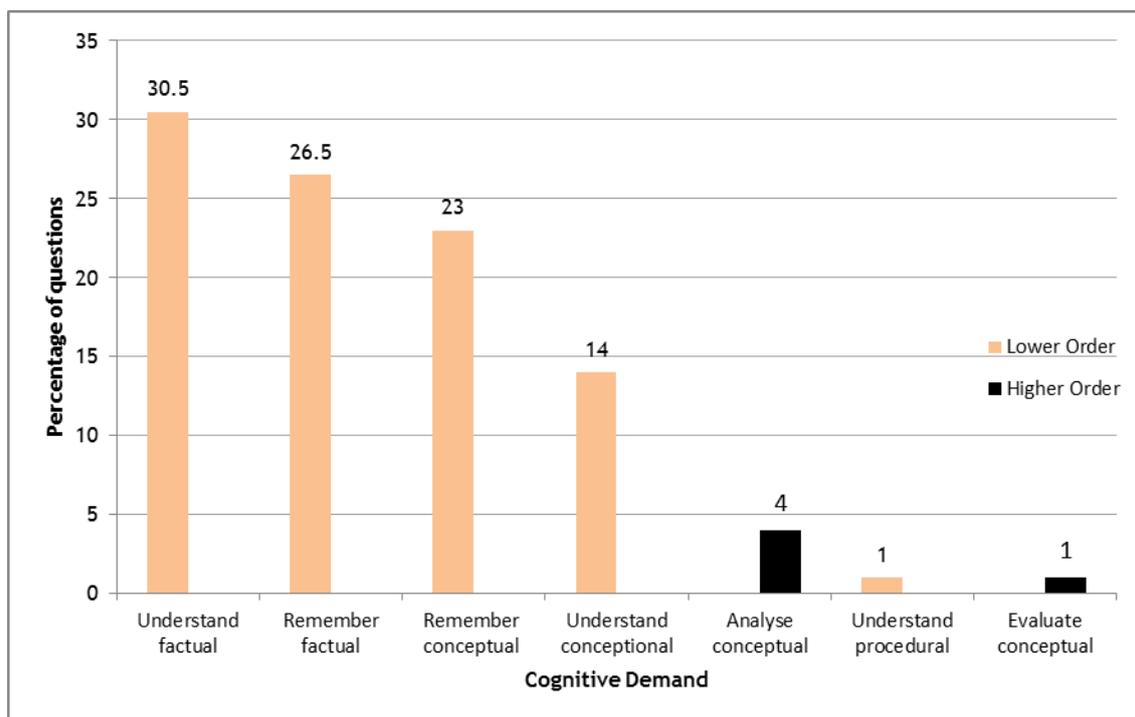


Figure 3 Cognitive demand of textbook questions

Homework questions ( $n = 55$ ) assigned by the three selected teachers over a period of one week were analysed. Textbook questions were most frequently used as a source of homework ( $n = 33$ ), followed by teacher worksheets ( $n = 15$ ), coursework ( $n = 4$ ) and examination papers ( $n = 3$ ). Of these, 60% of the assignments were lower order and 40% were higher order. One teacher set coursework assignments for homework whilst the other two mostly used lower order questions. It is not possible to draw robust conclusions from the analysis of these small samples of homework but the diversity is of interest with one teacher's homework being 100% in the *analysis* dimension and the other two having similar proportions of the lowest order combination: *remember x factual* (47% and 46% respectively) and only 8% and 0% for *analysis* and 0% and 5% for *evaluation* respectively.

## Discussion

The interviewees all viewed homework as a valuable exercise due to its potential to enhance learning. However, two of the teachers reported that they "go through the motions" and assign homework to "keep the students occupied". Two others believed that homework should develop higher order thinking skills and independent learning, but "in reality it probably does not", as homework is "all focused around the examination". Nevertheless, whilst homework questions may not be developing higher order skills, they are still considered by teachers to be valuable as they prepare students for examinations.

All of the teachers reported spending considerable time practising examination questions in class and one teacher alluded to the importance of practice homework: "Literally drilling them in good practice and going over and over examination questions looking at the approaches to questions ... looking at patterns within the papers and then correcting wagons

of questions and doing them over and over again.” Case and Swanson (2002) argue that questions, which demand the recall of isolated facts, drive students to ‘cram’ (p. 9) and work intensively to absorb large volumes of informational material in short amounts of time, but there is ample evidence to suggest that this model of learning is not effective long-term. That this approach is evident in this small sample adds to the concerns that testing arrangements and high stakes is contributing to a negative washback effect on teaching and learning.

The content analysis of Leaving Certificate Home Economics external assessment revealed that when weighted (20% coursework and 80% examination), 83.5% of the questions and tasks assigned were lower order and 16.5% were higher order in demand. Similarly, the cognitive analysis of teachers’ homework questions showed that the knowledge domains and cognitive processes most frequently assessed were lower order as the questions largely required the remembering and understanding of factual and conceptual knowledge. The study reported here shows that 50.5% of coursework questions demanded higher order thinking and the teachers also believed this to be the case. They held the view that these questions require higher order thinking, and they argued that this is a positive feature of current assessment practice. Notwithstanding this position, the study revealed that the teachers relied upon textbooks when sourcing homework questions and the results show that most textbook questions required lower order skills of recall. This trend may be explained by the fact that many teachers have insufficient time to plan homework and textbooks may offer a quick and practical solution.

There are many challenges to the assessment design process such as the availability of time to plan homework, the pressure of summative examinations and the teachers’ level of assessment literacy. Noddings (2008) argues that teachers are so busy covering the material demanded by the curriculum that they have little time remaining to plan homework. This can result in an ad-hoc approach to assigning homework, whereby it is often “a last minute process” planned just before or during class. Paradoxically, the interviewees reported assigning creative homework to low-stakes examination classes, while high-stakes examination classes were assigned a large quantity of examination questions. One of the interviewees argued that Senior Cycle students would not be “bothered” completing homework unless it related to examinations.

### **Concluding remarks**

The project set out to explore the effectiveness of homework practices in a Home Economics context in terms of student learning, and the data from the teachers roundly endorses the view that whilst homework has the potential to enhance student learning there is clearly room for improvement in everyday homework practice (Key Question 1). Many of the teachers were mindful that homework was usually not adequately planned and this resulted in ad hoc practice. Learning outcomes were often not considered when assigning homework questions and tasks. The evidence suggests that teachers frequently say they want to develop student understanding through the use of homework tasks, but practice can be different. Therefore, an inconsistency can exist between teachers’ views, espoused beliefs and practice. The clear implication is that there needs to be greater emphasis on building high quality homework into teaching plans.

However, the study shows that there are many challenges to effective choices of homework and appropriate task design (Key Question 2) such as the availability of time to plan homework, the need to address summative examination demands and teachers' knowledge pertaining to the design of a range of question types. Although all of the teachers expressed a desire to use homework to develop meaningful learning and to achieve the aims and mission of the subject, the negative washback of the high stakes national testing context strongly impacted on practice. Washback can of course have a positive impact. For example, desired knowledge, skills and attitudes can be developed when the assessment questions or tasks are designed to elicit evidence of these constructs and skills. Well-planned assessment tasks therefore have the potential to generate *planned washback*, and desirable improvements in teaching and learning. This in turn could make students more motivated to achieve learning goals rather than performance goals, with a likely positive impact on the affective outcomes of Home Economics education.

The use of less frequent homework tasks, the expansion in the range of questions used and the inclusion of carefully thought through differentiated tasks may enable both teachers and students in the achievement of a more sustainable work load and productive learning outcomes. However, such improvement will require intervention in current teacher education arrangements. The teachers in this study report that there is little initial teacher education or professional development relating to assessment literacy or the design of assessment and without that type of grounding, teachers may lack the confidence and expertise to devise more creative assessments.

The value of existing homework tasks to students' learning (Key Question 3) was examined by evaluating the cognitive demand of a sample of 444 homework questions and the findings revealed that 74% and 26% of the items had lower and higher order cognitive demand respectively. We would contend that any improvement in this ratio in favour of homework with higher order cognitive demand would significantly enhance the development of higher order thinking skills whilst counteracting the less desirable effects of rote learning. We would argue that there is a clear need for homework to be recognised for its importance in enhancing learning. Echoing Baird et al.'s call for a greater "emphasis upon the assessment of higher order thinking skills in the examinations in keeping with international trends in assessment" (2015, p. 27), we would urge teacher education to focus more attention on ensuring homework is more carefully designed and critically reviewed in relation to the learning it is designed to enhance and assess.

## Biographies

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## Taste as a didactic approach: enabling students to achieve learning goals

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### Abstract

*Teaching does not necessarily condition learning, and specific didactic elements do not necessarily condition the best learning outcome; this also applies to food and cooking lessons in schools. Teachers' didactic reflections usually reflect the content and form of the teaching, as well as a number of expectations regarding students' learning. This article presents the results of a new quantitative study that investigates students' work with taste in relation to their own expected learning in the subject Food Knowledge, viewed in the light of three didactic elements: motivation, student participation and innovation in school. The method involves asking students to complete a questionnaire (N = 769) after competing in a Food Contest, a competition that forms part of Food Knowledge. The connection between taste and learning is a relatively unexplored field, and the analysis in this article indicates that the experience of working with taste in Food Knowledge may have an effect on students' expected learning that is just as positive—or even more positive—as that of known didactic elements like student participation and innovation. Therefore, teachers need to create a balance between didactic elements and remember to incorporate taste as a didactic approach in enabling students to achieve learning goals.*

**Key words:** taste, learning, didactics, Food Knowledge

### Introduction—Food Knowledge

As part of the 2014 reform of the Danish compulsory primary and lower secondary school (*Folkeskolen*), a new subject was introduced called Food Knowledge, which replaced the old subject of Home Economics. Food Knowledge is not just a modern version of the old subject, but a subject with a completely new academic profile, new areas of competence and new goals. Food Knowledge has two academic profiles: firstly, it is a compulsory subject for at least one year between the 4th and 7th grade; secondly, it can be offered as an optional subject in the 8th and 9th grade, building on the compulsory subject and leading to an exam. It is up to the individual school to decide whether the subject should be offered as an optional subject. In both the compulsory and the optional subject, the students work within four areas of competence:

- (i) Food and Health;
- (ii) Knowledge of Food;
- (iii) Cooking; and
- (iv) Dining and Food Cultures.

It is not expected that every lesson contains all four areas of competence; rather, they should be selected in relation to the concrete teaching topics and courses (EMU, 2015).

Food Knowledge provides the opportunity for students to work with senses and experiences, and to experiment, create and communicate in relation to food and meals. The students develop their new skills and knowledge through motor skills, cognition and perception. Food Knowledge facilitates various way of strengthening student learning and cognition. There is much to suggest that the one single factor that is most significant if students are to learn something new is that they are able to link something new to something they already know (Kruse, 2007). Therefore, it is important in terms of learning that students' existing skills and experiences are employed in the teaching. The teaching guidance for the subject thus recommends that teachers should take into account the students' prior skills in addition to the formal guidelines for the subject.

Furthermore, in Food Knowledge teachers are encouraged to present their students with the academic intention that teachers and students should formulate common learning goals; and teachers should also explain their teaching choices to the students. It is not enough simply to cook and eat something. In accordance with the subject curriculum and teaching guidance, it is essential that the teaching structure is clear, meaning: a) that there is coherence between process, goals and content; b) that the didactic elements are clearly visible; c) that roles, agreements and rules are clear; and d) that the school kitchen becomes a 'haven'. Further, efforts should be made to establish a stimulating learning environment regarding kitchen layout, aesthetics and useful kitchen utensils (Brønnum Carlsen & Terndrup Pedersen, 2014).

### Competence and learning goals

The conception of competence goals in the Danish school reform is in accordance with the Bologna Process (UFM, 2016), shifting focus from teaching goals to learning goals—in other words, from teacher centring to student centring. Each course relates to at least one competence goal with attached skills and knowledge goals. Teachers should have a main priority within a certain competence area and a clear focus on which learning goals are relevant and achievable for the students.

The inspiration behind this approach is to a great extent John Hattie's meta-study *Visible Learning* (Hattie, 2009). One of Hattie's points is that students should continuously be presented with simple and precise learning goals in order to make their teaching goal clear; this pertains both to extended periods of teaching and, in particular, to individual lessons. The intention is to give students a clear picture of what they need to learn, as well as making them aware of their own learning process through continuous feedback in connection with the learning goals. Such an approach requires teachers to reflect on what signs of learning can be used as indicators, as well as how to define learning goals in such a way that it is clear whether the students have achieved them (Hattie, 2009, pp. 173-178, 246-247).

### The concept of learning

Our research on Food Knowledge focuses on the relation between teaching and students' learning, in particular the forms of cognition linked to taste. In our understanding of

didactics, we distinguish between three central concepts. Firstly, *learning* is the individual process which the individual student goes through in relation to the cognitive work. In terms of learning, a distinction can be made between intended and realised learning. Intended learning includes goals that build on ideals, ambitions or expectations, that is, a teacher or student's goals for a specific pedagogical activity in regard to expected learning. This can be viewed in contrast to realised learning, which indicates a student's actual outcome of a specific pedagogical activity. Whereas intended learning from the teacher's perspective is a generalised ambition linked to the communication taking place in a pedagogical activity, realised learning is an individual and often very different experience, which can be far from or close to the intended learning. However, intended learning is not only the teacher's domain; in our study, we operate with the students' intended learning as an indication of what they expect to learn. This makes it relevant, in relation to validity, to reflect upon what it is that is actually being studied. In this context, we are aware that it is not the students' learning that is studied directly via the questionnaire, but rather their perception of the learning process and what kind of learning they expect to realise as a result of it. However, it could be argued that the students' perception of the characteristics of the learning process should not be seen as separate from realised learning. In order to realise learning through teaching, it is central that the teaching is able to grab the students' attention (Wistoft, 2012, pp. 66-67). The teaching needs to make sense to the students in order to engage them. Thus, students' perception of the teaching is far from insignificant; it contains knowledge about how likely it is that the intended learning is actually realised.

Secondly, *teaching* is a communicative event in which a pedagogical activity takes place; it is not an inner experience but a communicative situation. Teaching can take place without learning, for example, when the intended learning does not become realised learning. Another possibility is that the teaching stimulates a different form of learning than that intended.

Thirdly, *education* is the guiding framework or organisation in which teaching takes place and through which the teaching, both academically and ideologically, must be legitimised (Wistoft, 2009). This study focuses on learning linked to taste education on the courses that are part of the Food Contest project, which has a number of learning intentions. These learning intentions are always guided by specific sets of values reflecting basic pedagogical and ideological ideas, and specific forms of cognition, skill and knowledge are prioritised on the basis of these ideas. It is these sets of values and basic ideas, as well as the learning practices employed in taste teaching in relation to the Food Contest project, which we will analyse and discuss.

### **Why study expected learning?**

Students' learning expectations can be viewed as a kind of self-reported learning. It is easy to criticise such data with regard to the difference between the respondent's subjective perception of their own learning, and their actual learning in a more objective perspective (provided the existence of such a thing as 'objective learning' is accepted). In addition, there may be a good deal of variation in relation to different respondents' subjective perception of what it means to have learnt something. On a Likert scale, for example, it is highly subjective what the different categories encompass (Babbie, 2013, p. 175). This is due to the fact that

the scale was developed as a research design with a starting point in systems theory, where the basic concept of subject/object is replaced by the theoretical construct of system/environment (Luhmann, 2000). Taking as its point of departure this theoretical perspective on learning, and accepting the limitations it entails (Luhmann, 2006, p. 189), self-reporting is a method to get the respondents to communicate about their own learning. Studies have shown that self-reported learning generally does not differ significantly from realised learning. John Hattie writes: "Children are the most accurate when predicting how they will perform" (Hattie, 2015). He grounds this on five different meta-analyses (Falchikov & Boud, 1989; Falchikov & Goldfinch, 2000; Kuncel, Credé, & Thomas, 2005; Mabe & West, 1982; Ross, 1998), in which students' self-reported achievement levels in a subject were compared to subsequent test results. All five studies conclude unequivocally that the students' assessments of their achievement levels were very close to the level determined via tests. This is not to make an argument for equating self-reported learning with realised learning; however, it can be argued that a method that documents self-reported learning is capable of producing valid indications of realised learning, provided that unavoidable uncertainties are accepted.

### The Food Contest as an empirical field

This article presents the initial results of an ongoing Danish research project carrying out parallel research on an experimental development project in Food Knowledge. The project is called *Food Contest—the Danish Food Knowledge Championship* and was established with the aim of improving the cooking skills of students in schools and strengthening the position of the subject of Food Knowledge in Denmark (Pedersen, 2012). An annual course focuses on one ingredient and one associated theme: these ingredients have included the apple, the carrot, the beetroot and grains; while the themes have included nutrition, food and dining culture, and health. The concept is an annual continuing professional development course for teachers and teacher training students, and provides teaching inspiration in relation to the selected ingredient and associated theme. The idea is that the teachers subsequently bring inspiration to their local schools in order to carry out a course with their students. The philosophy behind this form of teaching is that student participation should be made central, combined with innovative and experimental learning processes in which the students collaborate on developing new dishes with the ingredient in question. Existing research has documented that innovative work and student participation are two didactic elements that are particularly useful in increasing students' learning outcome (Davies et al., 2013; Simovska & Bruun Jensen, 2009). The aim is to engage the students in order for them to realise a greater learning outcome by making the products their own rather than something which is dictated by their teacher. As part of the course, the students document their learning process and send the documentation (descriptions, images, videos, etc.) as an application to enter the competition *Food Contest—the Danish Food Knowledge Championship*. Based on this material, a suitable number of school classes are selected to participate in a local semi-final, the winners of which continue on to the national final. At these events, the students present their dishes and the processes they have gone through. In that sense, the element of competition is essential to the concept. However, the intention behind the Food Contest is not primarily to facilitate a cooking competition. Rather, it is to create the framework for an educational process characterised by students working innovatively with cooking, aiming at a high degree of student participation. These criteria also constitute the starting point for the assessment

of the students' achievements in the competition (Pedersen, 2012). Obviously, taste is essential to the cooking process and the finished products in the Food Contest. However, taste can also be viewed as a theme on which individual teachers can focus to a greater or lesser degree. Our studies show that students have different perceptions of working with taste, in regard to how much priority taste is given in the teaching they have attended. This makes it interesting to analyse how this perception influences their learning. Before that, however, let us turn to the concept of taste.

### Concepts of taste in science

Taste is often defined differently within different disciplines, for example, physics, pedagogy, anthropology, sensory science and media studies. Formulating an adequate definition of taste can be a difficult task; it typically ends up being either too narrow or too broad, because different disciplines have different understandings of how to define taste (Leer & Wistoft, 2015). Expressed in slightly simplified terms, science primarily focuses on taste as a multisensory process in which the sense of taste is just one of five senses (sight, touch, smell, sound and taste). The sense of taste is described physiologically: we taste via specific stimulation of specific senses and sense receptors, or chemically in the form of the encounters and transformations of various substances.

Various receptors are located in the membranes of the taste cells, and are sensitive towards the five basic tastes: *sour*, *sweet*, *salty*, *bitter* and *umami*. When the taste substances are recognised by—and connected to—the receptors, an electrical signal is triggered via a number of biochemical processes and transmitted to the brainstem and on to the brain (Mouritsen & Styrbæk, 2015, p. 34). However, Mouritsen and Styrbæk emphasise that the taste sensation as seen from a scientific perspective cannot be reduced to this description as the sensation is a result of an integrated multisensory process in the brain that includes taste, smell, mouth-feel, sight and hearing (Mouritsen & Styrbæk, 2015, p. 32). Furthermore, they emphasise that it does not make sense to conceive of the experience of taste as a purely sensory-physiological phenomenon: “it also always includes a social, psychological and cultural dimension, which is related to norms, education and formation, aesthetics, values and identity” (Mouritsen & Styrbæk, 2015, p. 32).

By contrast with the humanities and social sciences, in science there is only one way to understand taste: as a sensory phenomenon that communicates impressions, which are processed in the brain. New insights continuously facilitate understanding of the capacity of receptors and neural pathways, and how a response to an impression can result in a specific taste. According to the scientific understanding, there is a surrounding world in which some molecules exist that are registered by a sensory apparatus, which signals the registered impression to the brain; this leads to a process in which the brain links the response to the sensory impressions to cognitive levels. The fact that there is a consensus on the understanding of taste means that the different scientific disciplines shed light on the same phenomenon, and they all build on each other. The scientific disciplines collaborate, which can be exemplified with a list of five scientific approaches to taste:

- (i) Taste in itself, understood in terms of what is sensed directly on the tongue and in the mouth cavity, viewing taste as a chemical-physiological phenomenon mainly

taking place in the almost 9,000 taste buds on the tongue (Mouritsen & Styrbæk, 2015).

- (ii) Taste in a sensory-physiological sense, conceiving of taste as an integrated multisensory process that includes chemical taste, smell, mouth-feel and hearing (Shepherd, 2012). Here, taste is a result of the interaction between macro-sensors, that is, the influence of various sensory impressions on taste. The point is that all five senses are in use when we taste (Khandelia & Mouritsen, 2012). Some scientists are particularly interested in mouth-feel, which includes chemical and mechanical reactions that are not part of the primary sensation. Here, it is not the five basic tastes—sweet, sour, bitter, salty and umami—that are central, but chemical or mechanical reactions or bonds to the receptors on the tongue: *chemesthesis*, which describes the sensitivity of the skin and mucous membranes to chemical stimuli that cause irritation, pain or damage to cells and tissue, and *astringency*. Both are mechanical effects on the mucous membranes (Mouritsen, 2014).
- (iii) Taste in a neurological sense, taking taste as an effect of the 'image' that appears in the brain when something is tasted. In English, the term *flavour* describes the combined taste impressions; unfortunately, a similar term does not exist in Danish. All the components in flavour employ cranial nerves to communicate with the brain. Mouritsen describes how three cranial nerves in particular—the olfactory nerve, the optic nerve and the trigeminal nerve—play a central role in this flavour communication. He also describes how taste is typically studied within taste neurology as a physical-chemical phenomenon, but also—and especially—in terms of the effect of smell and mouth-feel on the taste impression (Mouritsen, 2014).
- (iv) Neurogastronomy, drawing on the above-mentioned neurological realisation that flavour is created in the brain. Here, taste is viewed in relation to emotions, memories, language, learning, consciousness and, accordingly, food preferences (Shepherd, 2012). In this sense, taste becomes significant in relation to eating—why we like the food we like (Prescott, 2012)—and neurogastronomy constitutes a scientific basis for gastronomy.
- (v) Gastrophysics, viewing taste in a broad sense as something that springs from the chemical composition, biochemical processes and physical characteristics of the ingredient. Combined with knowledge, and impressions and memories of taste, the broad concept of taste in gastrophysics constitutes a specific approach to learning. Gastrophysics aims to integrate learning and food in creating interest in and motivation for Food Knowledge among children and young people via taste (Mouritsen, 2014).

### Cultural concepts of taste

A number of culture researchers and sociologists have also contributed to the concept of taste. They focus on the significance and function ascribed to taste in specific contexts, or how taste is part of social and cultural communication systems. One of the most elaborated and widely discussed contributions is without doubt that presented by the French sociologist

Pierre Bourdieu in his book *La distinction* (1979). Bourdieu's original point is that taste does not reflect the individual's unique physiological taste, but rather their social position and background: "Taste classifies and it classifies the classifier" is a slogan that encapsulates the essence of Bourdieu's analysis (Bourdieu, 1979, vi). Hence, taste is an art of differentiation in which taste—and not least distaste—functions distinctively within classes, in a social process where the different classes distinguish themselves from others as their anti-models, creating a collective identity within the group through cultivating specific taste ideals. Such distinctive taste communities always function negatively; as Bourdieu emphasises: "social identity is defined and asserted through difference" (Bourdieu, 1979, p. 191), and taste is precisely a central marker of difference. According to Bourdieu, food culture is an extremely rich field for such taste and distaste constructions. Food is used as a medium for groups to distinguish themselves from others through different culinary ideals.

Bourdieu's analysis has been criticised for being too rigid, as his position does not leave much room for change, individual agency and mobility (Warde, 1997, pp. 5-21). Several contributors to post-Bourdieuian discussions on taste have also pointed out that the distinctive practices can no longer only be understood on the basis of (economic) class, claiming that the taste ideals rather function as entry tickets to various ad hoc communities (Povlsen, 2007, p. 47). Already in 1988, the French sociologist Michel Maffesoli wrote about *neotribalism*, that is, a society in which various new taste tribes occur around current brands and trends, which means that the foundation of the idea of distinction must be reconsidered, given that the Bourdieusian class distinction cannot account for these new social group formations (Maffesoli, 1988, p. 24). Apparently, Maffesoli does not reject the idea of social identity being constructed through difference; rather, he views Bourdieu's class distinction as one of many, contending that, especially in the middle classes, a number of new tribes exist that are equal in a class perspective while being distinct from one another, for example, based around slow food, a Paleo diet, raw food, and so on. However, it is worth keeping in mind that food culture still contains a class perspective, as these distinctive groups primarily 'recruit' people who have the financial and cultural wherewithal to be part of such food and dining communities.

Teachers and researchers with a background in pedagogy, sociology and cultural sciences, on the other hand, seem to have a much broader concept of taste, regarding it as something that is rooted in cultural and sociological processes, created through interplay between individual memory or experience and collective structures (Leer & Wistoft, 2015). However, those within both science and the humanities can often see that their descriptions alone are inadequate. Nevertheless, it is difficult to describe precisely the interaction between the two different views on taste, and how they can work together. Reaching a common definition of taste is therefore not an easy task. The matter is further complicated by the fact that taste—unlike other scientific terms—is also an everyday word, used without much consideration in a number of different meanings in general communication. For these reasons, we have chosen not to restrict ourselves to a specific definition. Instead, we aim to understand taste as a didactic theme whose values can be defined and clarified in relation to different forms of Food Knowledge teaching. Hence, the article does not employ a consensus-orientated, stable and precise concept of taste, but rather views taste as a value and context-defined, didactic

theme. All of the above-mentioned concepts and understandings provide the framework with regard to analysis of the collected empirical data.

### **Method and analytical strategy**

It should be acknowledged that in a research perspective, it is difficult to ensure direct insight into the students' realised learning on the basis of the contextual definition of learning—especially in relation to a subject like Food Knowledge and the Food Contest project, where testing is not an obvious option. On the other hand, it is possible to observe communicative signs of learning; therefore, we opted for a questionnaire to gain insight into which expectations the students have realised with regard to the overall learning goals of the project and, further, to study students' perception of the different didactic elements included in the Food Contest project. On an analytical level, it is the relation between learning expectations and the different didactic elements that is being explored.

On the concrete level, a questionnaire was developed containing a total of 34 questions. The questionnaire only applies point 6 answers on the Likert scale, addressing the following constructs:

- Expected learning (7 items;  $\alpha = .78$ )
- Experience of working with taste (3 items;  $\alpha = .77$ )
- Experience of working innovatively (3 items;  $\alpha = .72$ )
- Experience of student participation (3 items;  $\alpha = .70$ )
- Experience of collaboration (3 items;  $\alpha = .60$ )
- Experience of the element of competition (1 item)
- Students' well-being (3 items;  $\alpha = .59$ )
- Motivation for food and dining (3 items;  $\alpha = .75$ )
- Involvement in food and dining in everyday life (5 items;  $\alpha = .49$ )

All the questions were subsequently recoded as variables in accordance with the constructs studied. With an eye to further analysis, the following background variables were collected:

- Gender (1 item)
- Age (1 item)
- Geography (1 item)
- Grade (1 item)

The study was carried out with 769 respondents, the total number of students participating in the Food Contest semi-finals 2015. When the students at the event were not cooking or competing, different workshops were held to ensure their time was spent productively. One of the workshops involved answering the questionnaire. This took place one class at a time, and all answering sessions were supervised by the author. The respondents represented 42

school classes, mainly 6th and 7th grade. Six geographical regions of Denmark were represented, distributed across the country.

### Correlations

The reliability coefficients ( $\alpha$ ) between the tallied tables are generally more than .70, meaning that the correlations are acceptable and indicating that the questions measure the intended construct (Field, 2009, p. 679). However, regarding *collaboration* and *well-being*, the coefficients are only .60 and .59, which indicates poor correlation. Nevertheless, the variables are correlated, albeit to a low degree. Regarding the students' involvement in food and dining in general, the reliability coefficient is .49, which is so low that the construct has not been included in the further analysis.

### Dependent and independent variables

With an interest in the cognitive element as a point of departure, the constructed variable *expected learning* is used as a consistent, dependent variable, while other variables are used in the analysis as independent variables. This approach, however, may appear linguistically problematic.

The questionnaire study is designed as an observational study. Therefore, it is not possible to control the independent variables the way it is done in experimental research designs, where the aim is that independent variables are only manipulated one at a time (Kent, 2015, p. 280). In an experimental design, it makes sense to define variables as either dependent or independent, because the effect of one variable (independent) on another (dependent) can be observed explicitly. However, in the present observational design, things are not quite as simple. It is possible to control for factors that the researcher is aware may influence the dependent variable, but it is not possible to control for factors the researcher is unaware of (Luhmann, 2000, p. 221). Based on this theoretical and philosophical point, it can also be argued that hoping to seize control of all the variables that may affect a given dependent variable is utopian. This would be too complex an operation because the cognitive interest focuses on students' learning expectations. Further, it can be misleading to characterise students' learning expectations as dependent on specific variables, because this may entail causal associations. Nevertheless, the terms dependent and independent are still used because this terminology is dominant in the literature describing the methodology of quantitative research. However, it needs to be acknowledged that students' learning expectations are influenced by a variety of factors that are impossible to observe in isolation.

### Multiple regression analysis

How great is the effect of different variables on *expected learning*, and what difference is there between effects? In answering, we have opted for a multiple regression analysis. One of the challenges of this analysis is that the different variables are constructed on the basis of a varying number of questions, which are answered on different scales. Therefore, all variables in the multivariate analysis have been standardised. When the regression analysis is carried out, the coefficient expresses how many standard deviations the dependent variable will change as a consequence of an increase of 1 standard deviation in the independent variable. This facilitates comparison across variables that have been measured on different scales.

Multivariately, it is possible to combine and analyse the variables in 78 combinations. In the analytical phase of this research process, all these combinations were tested and analysed. Out of consideration for the scope of the present article, it is not possible to present all results. Furthermore, not all results are deemed to be worth mentioning. Instead, the results that are considered most noteworthy in relation to this article have been selected for presentation (see Table 1).

In Table 1, the variable *expected learning* is continuously analysed as a dependent variable, while the constructed variables and background variables function as independent variables in the analysis. The independent variables are presented in the first column, while the subsequent columns present the results of the different analyses. In the column named *Bivariate regression*, a linear regression analysis has been carried out *between expected learning* and the variable in question in the same row. In this context, control has not been made for other variables. In the columns named *Step 1, 2, 3, 4* and *5*, the number of variables used in the analysis increases stepwise. The different steps must be regarded as five different analyses, while the independent variables included are those for which results are included in the column.

Table 1 Regression analysis of expected learning as a dependent variable and a variation of independent variables

	Bivariate regression	Multiple Regression				
		Step 1	Step 2	Step 3	Step 4	Step 5
Motivation	.44‡	.25‡	.17‡	.16‡	.16‡	.16‡
Innovation	.48	.28‡	.14‡	.14‡	.14‡	.14‡
Participation	.40‡	.12‡	.14*	.10	.09	.12
Collaboration	.38‡		-.03	-.01	-.02	-.02
Taste	.51‡		.26‡	.24‡	.25‡	.25‡
Competition	.32‡			.04	.05	.04
Well-being	-.14‡			-.06*	-.07*	-.07*
Region	.06				-.02	-.04
Grade	.10‡				.08	.09
Gender	.05					-.09*
Age	-.08*					-.03

‡  $p < 0.001$  †  $p < 0.01$  \*  $p < 0.05$

## Analysis and discussion of empirical findings

The first row in Table 1 shows the correlation between the standardised variable for *motivation* and the standardised variable for *expected learning*. The coefficient for this is consistently relatively high, which emphasises that motivation and expected learning are two phenomena with a mutual linear positive correlation—a correlation that has also been documented in other research (Schunk & Mullen, 2013). The correlation between *motivation* and *expected learning* is therefore not a surprising result, but it is arguably a good starting point for comparing the correlation of other variables with *expected learning*.

Focussing on the Step 1 analysis, it is noteworthy that the students' experience of working innovatively has the highest coefficient, 0.28, which is .03 standard deviation higher than the experienced motivation. The data thus indicates that the experience of working innovatively has a particularly positive effect on the students' expected learning. At the same time, it is noteworthy that the students' experience of participation has a coefficient of .12, much lower than the experience of innovation when only these three variables are analysed. All three variables have a positive correlation with *expected learning*, but in relation to the Food Contest project it is striking that the effect of *innovation* on the students' expected learning is more than twice the effect of *participation*, considering that the project gives more or less equal weight to the two didactic elements, aiming to aid students in achieving learning goals.

In the Step 2 analysis, the variables *collaboration* and *taste* have been added. Here, it is clear that *collaboration* has a negative coefficient of -.03. It should be added that the result is not significant and might therefore be random. In the bivariate regression analysis, the coefficient is .38 with a strong, significant p-value. It is considered more reliable that the experience of collaboration has a positive correlation with expected learning, but the data does not facilitate any concrete assertion regarding the effect in relation to the other variables analysed. In the Step 2 analysis, it is more interesting to focus on *taste*, where the result is strongly significant, the coefficient being .26. In all five steps of the analyses, *taste* has the highest coefficient, and the result remains strongly significant in Step 3, 4 and 5. In addition, the change in coefficient is insignificant when controlling for other variables, which indicates a reliable result. At the same time, it is noteworthy that the coefficient is remarkably higher than that of both innovation and participation—the founding didactic elements in the Food Contest project. Generally, the coefficient for *taste*, compared with the coefficient for *motivation*, is also noteworthy. All results for both variables are strongly significant, and *taste* is consistently .09 standard deviation above *motivation*, except in the Step 3 analysis, where the difference is .08. Hence, the data indicates a positive linear correlation between the students' experience of working with taste and their learning expectations. Among all the factors investigated, the effect of taste is the highest, which is a clear indication that it is relevant to include taste as a didactic element in reflections on teaching Food Knowledge.

Focussing on the Step 3 analysis, the students' experience of the element of competition and their well-being have been included in the analysis. The bivariate analysis displays a strongly significant result, which indicates that the students' experience of motivation as a result of the element of competition affects their learning expectations with a coefficient of .32. This result is lower than those related to *motivation*, *participation*, *innovation*, *taste* and *collaboration*. It can therefore be assumed that the element of competition may have a positive correlation with the students' learning expectations, but that the effect is smaller than that of other variables studied. Furthermore, it is clear that the effect is very minimal compared to the other variables when they are analysed multivariately. However, the results pertaining to competition in the Step 3, 4 and 5 analysis are not significant and might, therefore, be randomly generated.

*Well-being* appears in the Step 3 analysis with a negative operational sign. This is not an indication that well-being as a phenomenon has a negative effect on learning, but is rather a

result of the answer scales for the three questions that constitute the variable being reversed in relation to the other variables, in the sense that the lower the students' response on the scale for well-being, the more it expresses their well-being. As such, the result should be interpreted 'upside down'. The coefficient in the bivariate analysis therefore indicates that the variable *well-being* has a negative correlation (in a mathematical sense) with *expected learning*, the coefficient being  $-.14$ . In other words, the more well-being that students experience, the higher their expectations of realising their own learning expectations. The coefficient is relatively low compared with coefficients for other variables. In the Step 3, 4 and 5 analyses, the effect of well-being is very limited, and the results for this variable are significant in all three analyses. Well-being thus has an effect on the students' expected learning in the Food Contest project, but the effect is relatively small compared to other variables.

In the Step 4 and 5 analyses, the background variables *region*, *grade*, *gender* and *age* have been added. Only one result is significant: gender. However, the coefficient is relatively small, and therefore gender is not regarded as having any great impact in relation to *expected learning*. What is noteworthy in the Step 4 and 5 analyses, on the other hand, is that the above-mentioned coefficients for other variables do not change remarkably. The results for *motivation* and *taste* are still strongly significant, and the results for *innovation* and *well-being* are still significant. The Step 4 and 5 analyses therefore function as a control of the correlations interpreted earlier, indicating that the controlled background variables have an insignificant effect on the assertive strength of the analyses. The background variables can also be analysed in Bourdieu's theoretical perspective, viewed as markers of difference between respondents and thus factors that should classify the students participating. In this perspective, the background variables should have significant influence on the correlation between *taste* and *expected learning*. However, that is not the case in our analysis, which indicates that the effect of working with taste is not limited to specific groups of students, but is rather a didactic element that can benefit all students in working to achieve learning goals.

## Conclusion

This article demonstrates correlations between students' learning expectations and their experience of different didactic elements in the subject Food Knowledge in the Danish primary school. The results pertaining to most elements can be viewed as being expected, given that existing research has already demonstrated similar correlations. However, the correlation between taste and learning is a relatively unexplored field, and the analysis in this article indicates that the experience of working with taste within Food Knowledge may have an effect on students' expected learning that is just as positive as—or even more positive than—that of known didactic elements like student participation and innovation. This might be seen as self-evident, given that taste cannot be ignored when people deal with food and dining. Nevertheless, even though it is self-evident, it is important to emphasise that the students apparently have many different experiences of the extent to which they have dealt with the theme of taste in the teaching they have attended. This indicates that teachers have devoted different importance to the theme and thus prioritised taste differently as an active component in their teaching. Our study shows that the teaching in relation to the Food Contest project is highly varied and broad-ranging; for instance, it is to a large extent

characterised by student participation and innovative work. Other studies have documented that these approaches are useful in increasing learning outcome and achieving learning goals (Davies et al., 2013; Simovska & Bruun Jensen, 2009; Wistoft, 2013), and this is reaffirmed in our study. Nevertheless, prioritising participation and innovation, for example, entails the risk that learning and work regarding taste are thrust into the background behind these didactic priorities. If this happens, it would mean—in relation to our results—that students would not achieve the positive effect that working with taste can yield. We do not mean to argue that teachers should not include innovation and student participation in their didactic reflections; however, our observations indicate that taste is a crucial factor in relation to expected learning. Therefore, teachers need to create a balance between didactic elements and remember to incorporate taste as a didactic approach to aiding students in achieving learning goals.

## Biographies

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## Group work interaction among pupils in Home and Consumer Studies in Sweden

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### Abstract

*The aim of the study was to describe and analyze different types of group work during Home and Consumer Studies lessons in four Swedish schools, located in two different municipalities. Observations of pupils' practical tasks were carried out in six classrooms, and video/sound recorded. Study participants totaled 44 pupils (11-16 years old). Qualitative content analysis of the observations showed four different types of group work; 1) integrated, 2) expert (appointed by the kitchen partner/s and self-appointed), 3) divided, and 4) parallel. The most important finding was that pupils belonging to a self-appointed expert group, a divided group or a parallel group did not have the best conditions for learning. The integrated type appeared more conducive to individual learning than the other three. As a result, teachers have to be aware that non-functioning group work can negatively impact pupils' possibility of achieving the grade-related tasks for the subject.*

**Key words:** collaboration, Home Economics, compulsory school, learning, frame factors

### Introduction

Similarly to other countries, classrooms in Sweden accommodate lessons for the whole class as well as individual or group work (Granström, 2005). Between 1962 and 1994, Swedish curricula for comprehensive education recommended varied forms of work. After 1994, individual work was given more emphasis (Forslund Frykedal, 2008). Nevertheless, according to Vygotsky (1978), children's knowledge, attitudes, values and ideas develop through interaction with others, and much research has been done to examine the benefits of group work.

#### Collaboration in schools—research overview

Vygotsky (1978) argued that when children work together, they sometimes complete tasks that they would not manage by themselves. Webb (1991) also argued that peers could be beneficial for pupils' learning. Jackson (1990) stated that most of the things children and adolescents do in schools are undertaken together with, or in the presence of, others, and that this has implications for pupils' learning.

As far as *learning in groups* is concerned, two main approaches have been described, namely *cooperative group work* and *collaborative group work* (Bennett & Dunne, 1992; Galton & Williamson, 2003; Hammar Chiriac & Forslund Frykedal, 2011). Cooperative group work means working individually on a joint product, but with little or no interaction. In contrast, during

collaborative group work, all members are involved in the same task, and the competencies of all group members are used. During the last 20 years, there has been an increase in research on group activities in classroom settings (Hammar Chiriac, 2013), with numerous studies from preschool to university levels showing that collaborative learning has many advantages (Calderón, Hertz-Lazarowitz, & Slavin, 1998; Fall, Webb, & Chudowsky, 2000; Johnson & Johnson, 1999; Leikin & Zaslavsky, 1997). Consequently, it has been recommended that school tasks should be designed to promote collaborative work to increase learning (Sjøvold & Andersson, 2008). Gillies (2003) has argued that in collaborative learning, the participants learn to inquire, share ideas, clarify differences, solve problems and construct new ideas. There are also other ways of conceptualizing and defining group work (Steiner, 1972). Regardless of the definition of group work used, the teacher has an important role in making group work successful.

### **The role of teachers and pupils in successful group work**

The teacher's role in successful group work is complex and multifaceted (Forslund Frykedal, 2008; Hammar Chiriac, 2013). Important decisions include group constellation (e.g., number of participants, individual abilities, and social relations among group members) as well as the time and place for activities (Forslund Frykedal, 2008; Hammar Chiriac & Granström, 2012). Placing pupils in a group and telling them to work together will not automatically promote collaboration and learning. When groups are structured so that pupils understand how they are expected to work together (Gillies, 2003; Granström, 2005), as well as given time for debriefing after the group work (Galton, Hargreaves, & Pell, 2009), the potential for collaboration and learning is maximized.

According to Reynolds (1994), learning through group work presupposes that the individuals have control over their own work. It is also important that pupils are friendly, helpful and collaborative (Battistich, Solomon, & Delucchi, 1993). According to Hammar Chiriac and Granström (2012), pupils believe that well-functioning group work optimally consists of three quite homogenous group members who have enough time for the task and a quiet place in which to work. Forslund Frykedal (2008), studied Swedish pupils' construction and experience of group work in grades 4-9 (10-15 years), and she found that the creation of trust was regarded as very important when they worked together. This could involve two different processes: making friends and/or structuring tasks.

Despite the many positive effects of group work, in recent years, teachers seem more reluctant to use it as an educational tool, both in Sweden and elsewhere (Baines, Blatchford, & Kutnick, 2008; Galton & Hargreaves, 2009; Granström, 2012). A major reason for Swedish teachers' hesitancy is that group work makes it more difficult to assess pupils' individual achievements in a fair way (Forslund Frykedal & Hammar Chiriac, 2012; Hammar Chiriac & Granström, 2012). It has also been suggested that teachers' lack of knowledge about organization of group work can dissuade them from using it (Gillies, 2008).

### **HC-studies in Swedish compulsory school**

Since 1962, Home and Consumer studies (HC-studies) has been a mandatory subject for girls and boys in Swedish compulsory schooling (Hjälmeskog, 2006). However, it is the smallest

school subject, with a total of 118 hours (Swedish National Agency for Education, 2011a, 2014). The exact placement of these hours during the nine school years (grades 1-9) is decided in each school. In a previous national study (Lindblom, Erixon Arreman, & Hörnell, 2013), it was found that, in line with the 1994 curriculum (Swedish National Agency for Education, 1994), HC-studies was primarily taught in grades 5, 8 and 9. Another study showed that HC-classes were sometimes split in half and sometimes gender homogenous (Lindblom, Erixon Arreman, Bohm, & Hörnell, 2016). In a national evaluation of HC-studies from the early 2000s, group work was found to dominate (Swedish National Agency for Education, 2003). Collaboration in HC-studies was highly valued among pupils. Nine out of ten girls and eight out of ten boys saw collaboration as a specific competence that they gained almost exclusively through HC-studies.

An overall goal in the previous national syllabus for HC-studies in Sweden was the ability to collaborate regardless of gender and ethnicity (Swedish National Agency for Education, 2000). In the new syllabus, introduced in 2011 (Swedish National Agency for Education, 2011a), collaboration was no longer mentioned as a specific goal for the subject, and the focus of the main curriculum shifted to the individual pupil (Carlbaum et al., 2014). However, collaboration was still mentioned as something the schools should teach as a core competence, and group work also continued to be a practical necessity in HC-studies.

The Swedish Agency for Education (2011b) advocates that in all subjects, pupils should be allowed to practice tasks for a while before they have an exam period. Due to the limited time allotted to HC-studies, this is rarely the case, making pupils' pre-knowledge crucial for getting the highest grades (Hjälmeskog, 2014).

Practical lessons in HC-studies often begin with an introduction by the teacher, and then pupils work on a practical task (Hipkiss, 2014; Petersson, 2007). When cooking is on the agenda, these lessons usually include cooking a meal and/or baking bread. A HC-studies class generally consists of more pupils than there are kitchen units, which means that they must work together. The size of such *kitchen groups* varies, but commonly it comprises two to four pupils. In each group, the practical work can be shared or divided in different ways—usually the groups decide themselves. At the end of the lesson, pupils are often expected to present and/or eat the cooked meal at a preset meal time decided by the teacher (Lindblom et al., 2016). Consequently, HC-studies is a good subject for studying group work.

### Aim

The aim of this study was to describe and analyze different types of group work in HC-studies, with a focus on interaction and communication among pupils, and to consider possible implications for pupils' learning.

### Theoretical perspective

To understand pupils' group work, the study drew on frame factor theory (Dahlöf, 1967; Lundgren, 1972), which suggests that learning in HC-studies should be understood both as a result of *external frame factors* (based on political and administrative decisions, e.g., class room equipment and lesson time), and *internal frame factors*, such as peer relations.

Frame factor theory was developed by Dahllöf (1967) and Lundgren (1972) in the late 60s and has since been an important tool to understand the outcome of school activities. Dahllöf (1967) showed that the educational process and the options available in the classroom depends on frame factors such as timetables, curriculum, rules for class size, and classrooms. All of this influences teaching and learning outcomes. Group work is another aspect of the frame factor theory, since learning also depends on who the pupil works with (Garpelin, 1997; Lindblad & Sahlström, 1999).

## Method

The complex nature of practical hands-on tasks in HC-studies makes it difficult to capture what is happening through ordinary observations. Since the broad aim was to observe how pupils worked in the kitchen units, video observations combined with sound recordings were deemed the most pertinent methods. Video observation has become a common method for data collection in classrooms (Bohm, Lindblom, Åbacka, & Hörnell, 2015; Derry et al., 2010; Heikkilä & Sahlström, 2003; Hipkiss, 2014; Lindblom et al., 2016). The recordings and the transcripts enabled all of the authors to take part of the observations, instead of just the observer.

At the time of the study, HC-studies was taught based on two different national curricula and syllabi depending on school year/grade (Svensk författningssamling, 2010, p. 800). The 2011 curriculum was used for grades 5 and 8 (Swedish National Agency for Education, 2011a), and the 1994 curriculum and the 2000 syllabus were used for grade 9 (Swedish National Agency for Education, 1994, 2000).

The study was conducted in six classes from four municipality schools, located in two different municipalities in Sweden. One grade 5 class and two grade 8 classes were in the same school, which had a total of 250 pupils. The three grade 9 classes came from three different schools, each with about 500 pupils. All schools had 1-2 designated HC-studies classrooms: each with 4-6 standard kitchen units. All classes were formally led by a qualified HC-studies teacher, but in one class, a student teacher was responsible for teaching. All five teachers (including the student teacher) were women. In all but one class, pupils chose who to work with, although in one of these (a grade 9), the teacher encouraged the pupils to change kitchen partners after a few lessons. In one grade 9 class, the teacher had put the groups together.

Video observations and sound recordings were conducted between May 2011 and April 2012, with a special focus on practical work. Forty-four pupils participated (37 girls and 7 boys). They were between 11 and 16 years old and belonged to one grade 5 class (12 pupils), two grade 8 classes (six pupils), and three grade 9 classes (26 pupils). An additional 20 pupils (five in grade 5, six in grade 8, and nine in grade 9) were asked to participate but declined. One to three pupils worked in each kitchen unit. There were 26 kitchen groups altogether. Seventeen groups consisted of two pupils, and nine groups consisted of three. Some groups were the same during all the observed lessons, while others changed. Some groups were only observed during one lesson. There are many definitions of group work, but in this study the widely accepted definition of group members working together to gain a joint result was used

(Forslund Frykedal, 2008; Sjøvold & Andersson, 2008; Thornberg, 2013). When pupils worked alone, they were excluded from the analysis.

The lesson duration was between 60 minutes and 2 hours 20 minutes. The data were gathered during ten lessons. Six of these lessons were observed by the first author and four by the second author. This resulted in 17 hours of video footage and 70 hours of sound. Two to three video cameras captured the activities in each kitchen unit. The participants also wore individual mp3 recorders with microphones.

### Analysis

To identify different types of group work, the recorded material was analyzed in four steps. First, all sound and video recordings were looked at and listened to from start to finish by two of the authors in order to get an overall picture of pupils' interaction within each kitchen unit. Second, sequences of communication, including talk or body movements considered relevant to the aim, were marked as *critical incidents* (Tripp, 2011). Third, these critical incidents were extracted and transcribed. Critical incidents without talk were described in terms of body movement (gestures), gaze, and movement through the classroom. The recordings and the transcripts were shared and discussed by all authors. Fourth, the sequences were coded by the way pupils interacted with each other within the group, and then categorized. This step of the analysis was inspired by qualitative content analysis (Graneheim & Lundman, 2004). The main characteristics of each type are described in the result section. The type of group work should be understood in the context and the social situation in which they took place. Also, the four types of group work are prototypes, and sometimes overlap.

To illustrate pupils' communication strategies, the results are supported by quotations. The majority of these quotes are from grade 9, since they were more numerous and their lessons longer. When needed, clarifying comments were added within square brackets.

### Trustworthiness

In qualitative work, the main interest is to investigate one or several aspects of a phenomenon, without claiming to find and present the 'truth' (Wenneberg, 2001). In this study, the conditions for learning through group work in HC-studies was investigated by drawing on frame factor theory and a large amount of sound and video recorded data collected in six classes. The data were repeatedly analyzed by authors who were all professionally connected to the field of study: registered teachers, teacher educators at university level, and/or experienced HC-studies teachers in compulsory schools. The researchers' pre-knowledge, or pre-understanding, was vital for the study as it underpinned the analytical process for the data (Denzin & Lincoln, 2005; Wenneberg, 2001).

### Ethical considerations

The study was approved by the regional ethical board. The ethical guidelines of the Swedish Research Council (2011) were followed at all stages of the study. Teachers, pupils and legal guardians were given oral and written information about the aim of the study, and they were told that participation was voluntary and that participants had the right to withdraw at any

time without explanation. Oral consent was given by the teachers and written consent by pupils (15 years of age or older) and their legal guardians when they were younger than 15. Pupils who did not give their consent were not included in the study even if their guardians consented. Pseudonyms for schools, teachers and pupils are used in reporting these data.

## Results

In the analysis, four different types of group work emerged (Table 1):

- a) *integrated*,
- b) *expert*,
- c) *divided*, and
- d) *parallel*.

Table 1 Type of group work occurring in kitchen units for six observed HC-studies classes in grades 5, 8 and 9 (Year 2011 and spring term 2012)

G‡	Ob*	Intergrated group work	Expert group work	Divided group work	Parallel group work
5	1 <sup>st</sup>	Mats <sup>b</sup> , Olle <sup>b</sup> , Noel <sup>b</sup>	Angelica, Linn	Ulrika, Caroline, Ingrid Evelina, Saga, Signe	
	2 <sup>nd</sup>	Mats <sup>b</sup> , Olle <sup>b</sup>		Angelica, Linn, Ingela	
8	1 <sup>st</sup>	Cecilia, Rigmor, Linnea			Simone, Charlotte, Carina
9	1 <sup>st</sup>	Eva, Elin Sarah, Camilla Siv, Felicia Elsa, Anna Anette, Emma Juli, Marianne	Elena, Laura Roger <sup>b</sup> , Felix <sup>b</sup>		Kerstin, Ella
	2 <sup>nd</sup>	Eva, Elin, Sarah Siv, Felicia Elsa, Anna Malin, Olga Jeanette, Karin, Camilla Inez, Malin	Levina, Anette, Emma Tommy <sup>b</sup> , Lars <sup>b</sup>		Kerstin, Ella

Note: ‡ G = grade; \*Ob = Observation, e.g. first/second time; b = boys; all names are fictive

Regardless of the type of group work, pupils tended to choose tasks they already knew how to do. They often said that they were good or not good at something and therefore wanted or did not want to take responsibility for that task.

- Felix: What am I going to do?  
 Roger: See what's in the recipe... the rice... you can prepare the rice.  
 Felix: No! You know me and rice... No...  
 Roger: It says how to do it on the whiteboard... it's not hard to cook rice...  
 Felix: I'll make the salad.  
 Roger: Yeah, you can make the salad as well, and then...  
 Felix: Me and rice are not compatible.

(Two boys grade 9)

Noel: I don't want to slice the ham.

Olle: Me neither.

Noel: I'm not good at slicing.

(Two boys grade 5)

### Different types of group work

#### *Integrated group work*

Integrated group work occurred in 15 of the 26 observed groups. Here, pupils worked together and discussed recipes and cooking methods, for example, in what order to do things and what each individual should do. They also came up with solutions together. The discussions generally sounded positive and focused on finding the best method for solving the task at hand.

During one lesson in grade 9, two girls worked together and seemed to have done so before. They talked to each other in a friendly voice, both about cooking methods and other things. They asked each other about the size, form and appearance of the bread they were baking.

Elsa: Is this a good baguette?

Anna: That will be great! Is this good, then?

Elsa: Mmh-huh [affirmative sound].

(Two girls grade 9, own choice of group)

In another grade 9 class, a group of three girls had planned their meal during the previous lesson. They cooked lamb meatballs, a sauce and couscous. Sometimes the discussions involved all three girls, and sometimes only two of them. They discussed cooking methods and gave each other tips on how to do things.

Elin: Do you want to roll the meatballs, or...?

Eva: No (laughs), no... but it's okay [if she had had to, she would have done it].

Elin: I can roll them. Are we supposed to do it now, or...?

Eva: No.

Elin: Okay? [She was a bit puzzled that she was not supposed to make the meatballs right away]

Eva: Add the egg yolks and all the spices... put your hands in cold water and shape them into oval meatballs.

Elin: Ah, they're supposed to be oval...

Eva: I'll split the egg, you can start with the spices.

(Two girls grade 9, own choice of group)

Two boys in grade 5 made fruit compote and discussed the optimal amount of sugar to make it as tasty as possible. Finally, they agree on two and a half tablespoons of sugar.

- Mats: Three tablespoons, two and a half [of sugar].  
 Olle: Let's take three.  
 Mats: Yeah, that's good.  
 Mats: Not quite three (I think) [under his breath].  
 Olle: More.  
 Mats: A little... yeah, like... no.  
 Olle: Alright three, this is like two and a half.  
 (Two boys grade 5, own choice of group)

#### *Expert group work*

The *expert* type of group work meant that one pupil acted as expert. They could be appointed by their kitchen partner/s, but they could also be self-appointed.

#### *Expert appointed by the kitchen partner/s*

In one grade 9, three girls worked together. One of them had planned most of the cooking by herself and was therefore the expert. Her partners asked her for advice about almost every step of the cooking to make sure they did it correctly. The expert also wanted the cooking to be done in a specific way, and was not always satisfied with the way her partners worked.

[Emma is cutting the tomatoes and wants to get confirmation by the expert that they are small enough.]

- Emma: Sarah, I can't do better than this, it will be this kind of tomato pieces.  
 Sarah (expert): Is it possible to make them smaller?  
 Emma: Smaller!?  
 Sarah: Uhm [affirmative sound].  
 Emma: Of course [a little annoyed]!  
 [Sarah, the expert, shows Emma how small she wants the tomato pieces to be.]  
 Emma: THAT SMALL!! Why?  
 Sarah (expert): It should be that small, but I can do it.  
 (Two girls grade 9, own choice of group)

In another grade 9 class, two girls cooked pasta with a lentil sauce and one of them continuously asked the *expert* for advice. She always followed the expert's opinion.

- [At the beginning of the lesson]  
 Laura: Do you like garlic?

Elena (expert): Yes!  
 [1 minute later]  
 Laura: We can use sweet pepper if you like?  
 Elena (expert): I like sweet pepper.  
 [1 minute later]  
 Laura: We're supposed to add oregano, do you like that?  
 Elena (expert): mmh-huh [affirmative sound].  
 [After 25 minutes]  
 Laura: Do you think the pasta should be al dente or do you like it very soft?  
 Elena (expert): Al dente.  
 Laura: Here, taste... is it too hard or good?  
 Elena (expert): A bit hard.  
 Laura: We'll boil it a bit more.  
 (Two girls grade 9, teachers chose group)

#### *Self-appointed expert*

In one grade 9 group, the *expert* and his kitchen partner had planned most of the cooking together during previous lessons. They made chicken, rice, cabbage salad, and bread. Felix wanted to make the bread dough because he thought he was good at it. He started working on the dough, supervised by Roger, the expert. Felix got more and more upset with the dough, which did not behave the way he expected. Roger gave advice and repeatedly said that he could take over, but Felix wanted to continue by himself. After about 15 minutes, Felix thought the dough was done, but Roger did not agree.

Felix: Hey look, I bet this will work now.  
 Roger (expert): I can take over if you like?  
 Felix: But it will never... hell... take it or I will kill it!  
 Roger: Yes.  
 (Two boys grade 9, own choice of group)

Felix seemed quite satisfied with the dough when he said to Roger that he thought it would work, but when Roger wanted to take over anyway, Felix gave up and let Roger bake the bread without Felix' help.

Two girls in grade 5 made hot sandwiches with ham, cheese and tomatoes, and a drink which had to be mixed with water. This group's expert was Linn. By contrast, Angelica seemed insecure and anxious. Linn gave Angelica orders and supervised her, for example when Angelica cut the tomatoes.

Linn (expert): Is it going well for you?  
 Angelica: Yep, the tomatoes are really nice.

Linn (expert): You have to slice them more.

Angelica: But... aaa...

(Two girls grade 5, own choice of group)

Angelica was not allowed to do certain parts of the cooking and ended up using most of the remaining lesson looking for a jug and a pair of scissors to open the drink packet with.

In grade 9, two boys made lasagna. Tommy, the expert, used condescending vocabulary to his partner Lars and told him exactly what he could and could not do. Tommy also talked about grades to back up his claims of superior expertise.

Lars: Doesn't this look very nice? [the meat sauce]

Tommy (expert): I think it looks dry.

Lars: This!?

Tommy (expert): Yes, that.

Lars: Does it look dry? This? It looks dry?

Tommy (expert): Yes.

Lars: It's not dry.

Tommy (expert): I think so.

Lars: Look, this is... feel it... or maybe don't feel it. [He suggests that Tommy feel the sauce with his fingers, but realizes that it's too hot]

Tommy (expert): Aaah, good idea, what did you say your grade was in HC-studies? G [the lowest passing grade]... ha, ha.... I think we should put some water in it.

Lars: Not so much... No, that's enough.

(Two boys grade 9, own choice of group)

Tommy used his status as expert to appear better than he was. At one point, he had forgotten to turn off the cooker, but when the teacher saw it, Tommy blamed Lars. Lars tried to argue, but was 'put in his place' by Tommy. A few times, Lars tried to question Tommy's decisions, but he was dismissed. One example was when they had different opinions about whether their lasagna was ready to be taken out of the oven.

Lars: But these are hard [looking at the lasagna plates].

Tommy (expert): How do you know that?

Lars: They stand up like this [points at the lasagna plates in the oven].

Tommy (expert): But take them out so we can feel if they are hard.

Lars: They are hard.

Tommy (expert): But take them out!

Lars: I'm telling you, they are hard, look.

Tommy (expert): But take them out so we can feel if they're hard.

[Lars takes the lasagna out of the oven]

Tommy (expert): No, but I think they're soft, I think they're done.

Lars: But they're hard, you see, and they're supposed to be soft.

Tommy (expert): Not ours!

(Two boys grade 9, own choice of group)

### *Divided group work*

In grade 5, four out of six groups consisted of three pupils. In three out of these four groups, two pupils interacted and discussed the cooking, while the third member was uninvolved and did 'left-over chores'. In these groups, it seemed as if the third pupil wanted to participate, but was not invited by the other two. This was mainly visible through body language. For example, the videos showed two pupils working with something, standing very close together and ignoring the third pupil, who stood behind them, trying to join in. The two pupils who collaborated would sometimes look at the third one in a way that suggested they did not enjoy having her in the group.

### *Parallel group work*

Parallel group work was also mainly visible through body language. It occurred in two groups, one with three girls in grade 8, and one with two girls in grade 9. The pupils worked together, but almost without interaction. In grade 8, one girl did most of the work while the other two watched. They gave no comments and did not talk to each other, either. The grade 9 girls worked together during two lessons, but barely interacted. During the first lesson, they made lentil sauce with pasta, a dish their teacher had planned. One of them had the main responsibility, and the other one talked more with her other classmates than with her kitchen partner. She even took their carrots to a different kitchen unit to peel them. During the second lesson, she used most of the lesson to wash the dishes. The body language of both girls indicated that they were not happy with the situation. For example, they glanced pointedly at the camera and at other pupils in the class. They turned away from each other when they worked, and sometimes sighed at each other when they were cooking.

## **Discussion**

Based on the requirements of the HC-studies syllabus and the number of kitchen units in standard HC-studies classrooms, group work is a must in this subject. This is encouraged by top-down policy in the form of the 2000s curriculum that explicitly demands pupil collaboration, and by long-established bottom-up practices in classrooms. In this study, four different forms of group work among pupils were recognized: integrated, expert, divided and parallel.

Previous studies (Bennett & Dunne, 1992; Galton & Williamson, 2003; Hammar Chiriac & Forslund Frykedal, 2011) have mainly discussed *collaborative* and *cooperative* group work. These terms were not used here, although the *integrated* and *parallel* group work resembles them, because the names are too similar to each other and difficult to interpret. In other

words, to understand the difference between collaborative and cooperative group work, it was necessary to read the descriptions in the original papers.

Using the traditional terminology, collaborative group work enhances learning, which means that teachers and political administrators should strive to create opportunities for it to happen (Hammar Chiriac & Forslund Frykedal, 2011). Gillies (2003), emphasized that simply placing pupils in groups and expecting them to work together would not promote collaboration and learning. Children must be taught how to do it, just as purposely and precisely as academic skills are taught. They should also be given the opportunity to use their collaborative skills in practice (Johnson & Johnson, 1999).

In this study, it was not known how teachers handled group constellations or different types of group work during earlier, unobserved lessons. During the observed lessons, however, neither teachers nor pupils talked about how group work could be designed to increase opportunities for learning. In other words, there was no data to scaffold a discussion of this point.

Despite the recent reforms of 2011 (Swedish National Agency for Education, 2011a), where group work was no longer mentioned as a specific goal in the HC-studies syllabus, the results of this study support the suggestion that group work continues to occur in HC-studies, as part of the so-called 'hidden curriculum' (Jackson, 1990), thereby remaining a significant frame factor for pupils' learning. Whether explicit or implicit, requirements for group work in different subjects constitute platforms for pupils' performance.

### **Pupils as frame factors**

The most important finding was that in almost half of the groups, the type of group work used was not conducive to learning. This study has not measured what pupils actually learnt during the lessons, but judging from the data and previous research on the benefits of group work (Calderón et al., 1998; Fall et al., 2000; Johnson & Johnson, 1999; Leikin & Zaslavsky, 1997), pupils belonging to a self-appointed expert group, a divided group or a parallel group were not offered the best conditions for learning. Many pupils in these groups did not communicate productively and had no opportunity to take initiative or show creativity. The implications are that some of them would therefore have less chance to fulfill the syllabus requirements.

Expert group work occurred in five of the observed groups, and in three of those, the expert was self-appointed. In these cases, the atmosphere was not friendly, helpful or collaborative. However, it is not necessarily the expert role per se that is the problem, but rather the approach of the particular individual expert. Previous research has shown that peer learning could be beneficial for those who receive help, *if* teachers and pupils have previously developed explanations to use for the feedback (Webb, 1991). This did not occur in the present study. An important part of the syllabus is the requirement that pupils take initiative and show creativity (Swedish National Agency for Education, 2000, 2011a). The partners of a self-appointed expert had less opportunity to achieve this when they were not allowed to do certain tasks.

Parallel group work meant that pupils worked towards the same goal, the final meal, but with little or no interaction with each other. Pupils worked individually, and, even though they finished the task successfully, they missed out on the added benefits of group work. Parallel group work has similarities to *cooperative group work*, which is defined as working individually or working towards a joint product but without interaction (Bennett & Dunne, 1992; Galton & Williamson, 2003; Hammar Chiriak & Forslund Frykedal, 2011). However, parallel group work could also mean that just one pupil worked while the others watched. In addition, when communication is lacking and the goal is the end result rather than the process, there is a risk that pupils repeat the same type of task, lesson after lesson, and lose valuable opportunities to practice new things, this however applies to all groups.

In this study, the divided group work always consisted of three pupils. This type of group work seemed to work well for the two pupils who did interact, but not for the third pupil who was left with nothing to do or with left-over tasks. The reason for the division is not known, but perhaps the two collaborating pupils were friends or had worked together before and already had their roles in the kitchen.

Another more positive finding was that more than half of the groups were categorized as integrated, the group type most like the recommended *collaborative group work* (Bennett & Dunne, 1992; Galton & Williamson, 2003; Hammar Chiriak & Forslund Frykedal, 2011). Collaborative group work makes pupils reflect and develop new ideas as well as gain practical and theoretical knowledge from each other (Forslund Frykedal, 2008; Gillies, 2003). The integrated type of group work was most common in grade 9, especially in classes where the pupils themselves chose who to work with. Opinions are divided on whether teachers or pupils should decide group constellations. According to Forslund Frykedal (2008), many pupils prefer to choose their own groups, because they can be with friends or peers with the same ambitions, with whom they communicate well, which gives security. In the integrated groups in the present study, pupils discussed cooking methods, the cooking process, and what to do to be done on time. They seemed friendly, helpful and collaborative, which has been shown to increase learning (Battistich et al., 1993).

Petersson's (2007) study on gender and roles in HC-studies, showed similarities with the result of this study. Although her study focused on the individual pupil's role in the classroom, she also gave some examples of group work. In some groups, pupils collaborated actively, discussing the cooking and the recipes. In others, one of the pupils acted more as a leader and controlled the group work. These similarities to integrated and expert group work increase the validity of the present study.

The potential for successful collaboration and learning is maximized when group work is scaffolded by the teacher to make pupils understand how to work together. Galton et al. (2009) argued that group work could be improved further if teachers trained pupils in how to work in groups, and if more time was given to debriefing after group work. However, it is uncertain whether teachers are sufficiently trained in how to structure groups for best educational effect (either as part of their teacher's degree or in continued professional development). This issue was not investigated in this study but it might be interesting to explore further in another study.

Pupils' ability to work in groups should be of interest for the whole school, especially since it has been described as an important generic competence in the Swedish national curriculum (Swedish National Agency for Education, 2011a). According to the latest national evaluation (Swedish National Agency for Education, 2003), collaboration is especially tied to HC-studies, but all subjects should be involved in the teaching of collaboration in order for it to be successful, especially since HC-studies has such a low number of hours. This study indicates that both pupils and teachers need more education and better tools for creating optimal conditions for learning.

### Time, task and the syllabus as frame factors

There were several examples of pupils splitting the practical work between them, doing what they already knew how to do rather than learning something new. Although this is probably due to the current emphasis on individual performance, schools might do better to explore ways of making collaboration effective for learning and personal development. In real life, tasks are typically carried out by those with the most knowledge, but in school, pupils are expected to learn new skills. In HC-studies, in spite of mainly working in groups, pupils are assessed separately, and should therefore have the opportunity to practice what they do not know how to do. At the same time, pupils are expected to collaborate and finish a task together.

The training periods that should precede examination periods (Swedish Agency for Education, 2011b) are rarely seen in HC-studies due to its limited hours. A previous paper by Lindblom et al. (2016) indicate that pupils are afraid to fail and have a feeling that everything they do is assessed. Teachers also emphasize the dilemma of pupils being constantly assessed, without having the chance to learn and practice new skills (Swedish Agency for Education, 2011b). Without training periods, schools fail in their mission to compensate for differences in pupils' backgrounds (Svensk författningssamling, 2010, p. 800), making children's pre-knowledge all-important (Hjälmeskog, 2014).

Another relevant issue is that pupils are often expected to eat the things they cook, both because of traditions in the subject and more syllabus-based environmental aspects (i.e., avoid wasting food). It seems reasonable to assume that they would prefer a tasty and well-made dish and that they therefore would choose tasks they have tried before and have at least some knowledge about. Again, the question is whether the process or the end result is most important for the pupils. If the result is most important, all of the group work in this study succeeded, as everyone finished their meal on time. However, the syllabus is clear that the focus should *not* be on the end result. Instead, it is the experience of the process, and the ability to reflect on and discuss the meal that is crucial for learning within the subject.

The type of task also guides what kind of group work pupils can choose. If the task is too big for the time available, pupils *have to* split up the practical work between them and then put the pieces together to form a whole meal, even if they might prefer to work in an integrated way. This is the most common way of working in schools, regardless of subject, due to the type of tasks available when pupils are working together (Sjøvold & Andersson, 2008). Therefore teachers have an important role in creating the type of task that enables pupils to work in an integrated way.

## Conclusion

While teachers have little power over decisions regarding class size, time allotment and classroom design, important factors they *can* control are the lesson design and group constellations. The constraints placed on HC-studies in terms of, for example, time and classroom layout, mean a de facto reliance on group work. This reality means that the HC-studies teacher has to be aware of, and act on, the positive effects a well-functioning group work can have on pupils' possibilities to achieve the grade related tasks for the subject. Who they work with will have consequences for what they are allowed to do, and consequently, to learn. Therefore teachers need to gain an understanding of how to identify and deploy the most effective way of designing lessons for pupils to achieve learning in this environment.

The study concludes that preparation for, and the operation of, group work should be central when teachers and curriculum writers reflect on whether the school setting facilitates or hinders acquisition of the intended subject knowledge.

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## Transdisciplinary professionalism for Home Economics

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### Abstract

*This paper developed the argument that in order to practice in postnormal times (marked by chaos, complexity, and contradictions), Home Economists need to consider a different approach to professionalism. Accepting that transdisciplinarity is a way to engage with the chaos, complexity, and uncertainty, this paper introduces the idea of transdisciplinary professionalism. Home economics is first profiled as a profession, especially a service profession. The general notion of professionalism is discussed, followed with an overview of transdisciplinarity, leading to some thoughts about what transdisciplinary professionalism might look like in Home Economics including a shared ethos, shared accountability, a focus on the issues, and cross-sector professional identities. In addition to learning what it means to be professional in our own small area of practice, Home Economists would have to learn to identify, critique and learn professionalism in collaborative relationships across professions, disciplines, and other sectors. Transdisciplinary professionalism would go a long way toward positioning the Home Economics profession as it copes with, understands, critiques, and influences postnormal times.*

**Key words:** Keywords: Home Economics, professionalism, transdisciplinarity, transdisciplinary professionalism, postnormal times

### Introduction

Home economists are practicing in *interesting times*, meaning the times are disorderly, troubling, and disorienting (Martin, 2015). Ideas like capitalism, market fundamentalism, top-down politics, and corporate-led globalization have historically guided and shaped the *normal*, modern world. In these contemporary times, these concepts have become detrimental to the well-being and quality of life of global citizens and to the human condition. As a fallout of *normal times*, the world is witnessing the marginalization of huge swaths of humanity, uneven development, and a pervasive lack of peace and security in the form of global terrorism (coercive fear, worry and dread).

Today's interconnected and interdependent world is further characterized by rapid change, realignment of power, constant upheaval, and chaotic behaviour. We are living in *postnormal* times. Sardar (2010) defined this transitional era as "the in-between period where old orthodoxies are dying, new ones have not yet emerged, and nothing really makes sense" (p. 435). Postnormal times are marked by 3 Cs: chaos, complexity, and contradictions, leading to uncertainty and ignorance (meaning lack of knowledge or relevant education) (Sardar, 2010). Professional Home Economists are charged with helping individuals and families survive and thrive in these times (Pendergast, McGregor, & Turkki, 2012). This paper suggests that to

practice in postnormal times, Home Economists need to consider a different way to view professionalism (taken to be the expression of skills, competencies, and knowledge associated with a profession) (Cuff, 2014).

Gidley (2010) suggested transdisciplinarity as a way to engage with the chaos, complexity, and uncertainty of postnormal times. With the realization that we are living in a postnormal era, the call for transdisciplinarity has become urgent (Nicolescu, 2014). For the last 35 years, Home Economists have been encouraged to embrace the idea of transdisciplinarity (Brown, 1993; Daniels, 1980; McGregor, 2004, 2006, 2010, 2011a, 2011c). The prefix *trans* before the noun *discipline* refers to approaches to understanding the world and addressing humanity's problems that involve people from all walks of life that do not normally work together (Nicolescu, 2010, 2014). "Transdisciplinarity is about dialogue and engagement across ideologies, scientific, religious, economic, political and philosophical lines" (Shrivastava & Ivanaj, 2011, p. 85). No one perspective, discipline, profession, or world view constitutes a privileged place from which to understand the postnormal world (Nicolescu, 2010).

Diverse minds working together, who do not normally work together, is becoming 'the new normal' in postnormal times. The term *new normal* refers to a previously atypical situation that is becoming the current, expected state (Maisel, 2013; "New normal," 2009). What matters for the Home Economics profession is that this new normal is redefining how people in postnormal times understand professionalism (i.e., the belief system about how to perform in one's profession, regardless of the times). Transdisciplinarity could be a way to augment and enrich our discipline's approach to addressing the problems faced by individuals and families in postnormal times. The assumption is that what Home Economists currently know about what it means to be professional might have to change if they engage in transdisciplinary work.

In order to address the problems stemming from chaos, complexity and contradictions, practitioners will need to emphasize the professionals' role of communicating effectively across disciplines, professions and cultures (Crowe, Brandes, Avilés, Erickson, & Hall, 2013). They will need to increase their awareness, acceptance, and appreciation of diversity, as well as embrace professionalism across cultures. Given that many of us already respect the power of the interdisciplinary and integrative approach, Home Economists could consider characterizing themselves as *transprofessionals* (merging and transcending professional boundaries). This new term conveys the idea of professionals working beyond the professions (Casimiro & Hall, 2011), just as transdisciplinarity means working beyond the disciplines (to be discussed shortly). Transcending professions and disciplines will entail *transdisciplinary professionalism*.

Linking professionalism with transdisciplinarity is a very recent conceptual initiative, emerging just three years ago within the health profession education field (see Wynia, 2013). Cuff's (2014) book on this nascent concept is titled *Establishing Transdisciplinary Professionalism for Improving Health Outcomes*. She defined *transdisciplinary professionalism* as "an approach to creating and carrying out a shared social contract that ensures multiple health disciplines, working in concert, are worthy of the trust of patients

and the public *in order to improve the health of patients and their communities*" (p. 2). Late last year, Gibbs (2015) released a book titled *Transdisciplinary Professional Learning and Practice*, which "weaves a story of transdisciplinary professionalism" (p. 3). He felt that transdisciplinary professionalism reflects transdisciplinarity applied to professional practice. Briefly, it involves identifying, critiquing and (re)learning *professionalism* in collaborative relationships across professions, disciplines, and other sectors instead of just within professional boundaries.

To develop the idea of transdisciplinary professionalism in Home Economics, this paper first profiles Home Economics as a profession, especially a service profession. The general notion of professionalism is then discussed, followed with a succinct overview of transdisciplinarity, leading to some preliminary thoughts about what transdisciplinary professionalism might look like in Home Economics.

### Home Economics is a profession

Home economics is a *profession*, comprising *professionals* who value *professionalism* (Brown, 1965, 1980; Brown & Paolucci, 1979; Nosow, 1964; Weigley, 1976). Wynia (2013) provided a very succinct overview of how constructs with the root *profess* are interrelated (see Cuff (2014) for a richer discussion):

Profess: To speak out in public, openly declare

Profession: A group speaking out, together, about their shared standards and values

Professional: An individual member of the group; an act or behavior that is in conformance with the declared standards and values of the group

Professionalism: a belief system (an "-ism"), holding that professional groups are uniquely well-suited to organize and deliver certain social goods; there are established shared standards and values to govern the work, and ensured adherence to the standards. (Wynia, 2013, p. 16)

Home economics *is* a profession. It was actually referred to as "a new profession" at the very first Lake Placid Conference in 1899 (Brown, 1980). Brown (1965) and Brown and Paolucci (1979) juxtaposed Home Economics against a collection of criteria applied to any profession. Succinctly, Home Economics is a profession because it has a body of knowledge that it calls its own, and which is necessary for the good of society. This complex body of knowledge is systematic, logical, and derived from research. Acquiring it necessitates a prolonged period of study in higher education. Professionals have a monopoly on this knowledge, and they can each readily identify with it. Members need approval to enter the profession and licensing or certification to practice. They hold an esteemed position in society, and are viewed as legitimate contributors to public affairs and policy. Also, service to the public involves intellectual activity, including practical judgements (think before you act). Members of the profession actively assure the public that their work is morally defensible. The scope and purpose of the profession are necessarily limited to ensure the level of competence and independent thought required to be a professional in the field of practice (see McGregor, 2005).

In summary, professions possess a systematic theory and knowledge base, have authority (the power to influence thought and actions) and community sanction for the execution of their authority, adhere to ethical codes and standards of practice, and all professions have a culture of their own that inculcates the other four dimensions (Kieren, Vaines, & Badir, 1984).

### Home Economics is a service profession

Cuff (2014) applied transdisciplinary professionalism to health and medicine because it is a service profession, as are education, engineering, and social work. Home economics is also a service profession (Brown, 1980; Kieren et al., 1984). By this, Brown (1980) meant

- a) It is action-oriented toward being of service to society or some segment of society; that is, it is mission-oriented.
- b) It deals with questions that arise from sources external to the profession. The solutions to these society-oriented issues relieve pressure or satisfy certain needs or values of society or segments of society. ;
- c) Through an interdisciplinary and integrative lens, service professions draw on any and all existing knowledge that might contribute to the solution.

They see the problem in its whole context rather than in fragments or parts (see also Halmos, 1970).

### Professionalism

Because this paper is about the new concept of transdisciplinary professionalism, each of these concepts is explained before merging them into a new construct, starting with professionalism. Professions that are service-oriented are deeply concerned with the professionalism of their practitioners. Professionalism dates back to the Hippocratic oath (400 BC) (Cuff, 2014). "Ellen Richards and early advocates of Home Economics ... championed professionalism" (Stage, 1997, p. 32). Professionalism entails the expression of skills, competencies, and knowledge associated with a profession (Cuff, 2014). The suffix *ism* conveys the notion of a system of beliefs about something, in this case with being a professional. Professionalism is "the habitual and judicious use of communication, knowledge, technical skills, reasoning, emotions, values, and reflection for the benefit of the individual, [family] and community being served" (Epstein & Hunder, 2002, p. 226). "To embody the conception of professionalism, the individual [Home Economics practitioner] interprets and translates the characteristics of the profession to patterns of action that are ethically defensible" (Roubanis, Garner, & Purcell, 2008, p. 44).

The concept of professionalism is multifaceted. It encompasses (a) legal and ethical issues (professional parameters: boundaries and scope); (b) a myriad of responsibilities (to self, profession, clients, colleagues, communities, employers, and society); and, (c) exacting behaviours (appropriate relationships, acceptable appearances, profession-related attitudes, knowledge, and skills) (Brehm et al., 2014). Evetts (2003) referred to the "appeal and attraction of the concept of professionalism" (p. 402). She explained the notion of professionalism as a normative value system. This value system is central to the work of the profession and provides norms for practice. The normative value system is reproduced

through (a) similar educational backgrounds and training, and, (b) professional associations. The latter ensure that practitioners develop and maintain a shared work culture and professional identity, as well as shared ways of perceiving and solving problems. These norms constitute beliefs about what is deemed appropriate, effective and efficient for a profession.

In more detail, professionalism involves professionals holding themselves to two sets of values. One set is common to all professions and includes rational thought, rigorous thought, openness to examining thought, and freedom of thought, all amounting to intellectual honesty (Brown, 1965). The second set of values relates to the *specific* profession in question, in particular the central purpose of *that* profession. "The [Home Economics] profession exists because it attempts to answer certain related questions which are significant problems in the society" (Brown, 1965, p. 73). The following quotes reflect consistent expressions of the second set of Home Economics values comprising its professionalism, listed chronologically:

- The Home Economics profession is about "the self-fulfilment of the individual through sound home and family life" (Spitze, 1965-1966, p. 64).
- Brown (1978) said the profession is concerned with "practical problems of the home and family," problems requiring reflective decision making of what should be done (p. 15).
- East (1979) proposed that Home Economics "be focussed on the home in order to improve humanity" (p. 141).
- Brown (1980) asserted that Home Economics is concerned with "the human problems of the home and family" (p. 56); that is, with "the conditions and problems of the family" (p. 104).
- Kieren et al. (1984) posited that "the broad overall goal of Home Economics is to provide benefits to mankind [sic] [by] helping individuals and families" (p. 118).
- Thompson (1992) suggested that home economics is "basic to human survival and to surviving humanly" (p. 183).
- "The field of home economics has its foundation in the existence of individuals, as well as humanity as a whole" (Sekiguchi, 2004, p. 1).
- Pendergast et al. (2012) urged Home Economists to "ensure that the profession is part of the future of humankind" (p. 9).

Weigley (1976) explained that by upgrading the profession and emphasizing professional conduct, we can "achieve the goal of true professionalism" within home economics (p. 253). This higher standard involves elevating and dignifying the work of the profession so it is accepted by society (Houle, 1980). To that end, Kieren et al. (1984, p. 118) envisioned a "new breed" of Home Economists with attendant professionalism (beliefs) pursuant to bringing about meaningful changes in society. This new breed of professionalism would entail, amongst other things, cooperation between intra and inter-professional teams with a focus on complex issues with no answer(s). Leadership, including political action, would be offensive (not defensive or protectionist), and the goal would be for all people to collaborate and work together to achieve worthwhile goals of global citizens. Home economists would help individuals and families help themselves solve their daily problems (instead of telling them

what to do). Professionalism of this magnitude was deemed necessary to enable the profession to practice in a way that benefited human kind (see also Robertson, 1983).

### Transdisciplinarity

Home economics has historically characterized itself as interdisciplinary, and prided itself on being able to draw on many *disciplines*, and find synergies from this disciplinary integration to problem solve (McGregor, 2014b). The operative word is *between disciplines*. Although Home Economists are supposed to work with individuals and families and other sectors as they address perennial problems, we have not changed the way we frame ourselves—we still call ourselves *interdisciplinary*. Transdisciplinarity goes beyond this and refers to initiatives that are at once *between* the disciplines, *across* the different disciplines, and *beyond* all disciplines, extended to include the rest of the world (Nicolescu, 2002, 2007).

Transdisciplinary approaches to addressing the challenges of postnormal times transcend disciplines, moving to another space entirely, one where all voices are respected and needed, not just academics in higher education (not just Home Economists). The assumption is that for Home Economics, this means working with people from other sectors of society as well as drawing on other disciplines' knowledge. This outreach and bridging have historically been key to our work, but we still frame ourselves as *interdisciplinary*, intimating we draw on only disciplines. *Trans* (which means across, beyond, back and forth) would convey something else entirely.

Succinctly, transdisciplinarity is considered to be a *higher stage* of research and knowledge creation than are mono, multi, and interdisciplinarity. It is not limited to these ternary, disciplinary relations; rather, it concerns relations in the global system, without strict borders between disciplines or between higher education and the world (Brylina, Kornienko, & Kabanova, 2014; Klein et al., 2001). Brylina et al. described transdisciplinarity as "the synthesis of the disciplinary and the extra disciplinary... leading to a holistic-emergent (synergetic and evolutionary) picture of the world" (2014, p. 1009). Extra disciplinary refers to things that lie outside of disciplinary boundaries.

Chaos, complexity, and contradictions usually convey deconstructive notions of things breaking down or becoming convoluted and unmanageable. Transdisciplinarity, as worked out by Nicolescu (2002, 2011), assumes a *constructive* role for chaos, complexity, and contradictions as well as ambiguity and uncertainty (key features of postnormal times). Out of this vortex arise potential and possibilities, where a combination of disparate ideas *can* form a complex new whole. *Transdisciplinary synthesis* (Brylina et al., 2014) allows for people to creatively combine such things as various ways of seeing, knowing, comprehending, and envisioning the world. It includes the dialogue of cultures, and the synthesis of scientific and extrascientific knowledge (lying outside what is scientific). The sciences become open to other disciplines, especially the humanities and the arts, and the academy becomes open to knowledge arising from the lived world (i.e., social intelligence). This boundaryless interaction requires cooperation, collaboration, and respectful dialogue and listening amongst an array of people with diverse expertise and experiences. Complex problems are thus solved through a process of intersubjectivity and knowledge consolidation, whereby a space is created where contradictory ideas can temporarily be reconciled (Brylina et al., 2014; McGregor, 2015; McGregor & Donnelly, 2014; Nicolescu, 2011).

Nicolescu (2002) further proposed that knowledge consolidation happens by using inclusive logic rather than the exclusive, deductive and linear logic of the normal sciences. Inclusive logic makes room for contradictions because nothing is excluded (leaving things out means less than optimal solutions). Inclusive logic is employed to help people from diverse paths in life integrate insights from many different realities (e.g., sciences, economics, ecologies, politics, industries, communities, arts, lay people, spiritualities). This inclusive synthesis leads to a new image of knowledge, called synergetic knowledge (Brylina et al., 2014) or transdisciplinary knowledge (Nicolescu, 2011; McGregor, 2015).

This synergetic, transdisciplinary knowledge is alive and always changing because the problems and the people trying to solve them are alive and changing as they work together (Nicolescu, 2010; McGregor, 2004, 2015). Siloed, specialized, monodisciplinary, exclusionary processes are inadequate in postnormal times. The world needs new forms of mutual learning and problem solving, involving all sciences, the humanities, the arts, technology, *and* societal sectors (especially practitioners) to meet the complex challenges of the 21st century (Klein et al., 2001); transdisciplinarity meets these requirements.

**Transdisciplinary professionalism**

The paper now develops the argument that transdisciplinary professionalism has a place within Home Economics. In a Home Economics textbook, Fleck noted that “professionalism is a dynamic, ongoing process and is not static” (1980, p. 477). Furthermore, the meaning of professionalism is not fixed; rather, it is highly contestable, and needs to be challenged in new contexts (Evetts, 2003), like these postnormal times. “The professionalism of yesterday is not the professionalism of today, nor will it be the professionalism of tomorrow. Some core elements are the same, but the shadings change. And what issues get discussed as part of professionalism change as well” (Cuff, 2014, p. 10). With these sentiments in mind, this paper initiates a discussion of transdisciplinary professionalism in Home Economics in postnormal times (see Figure 1).

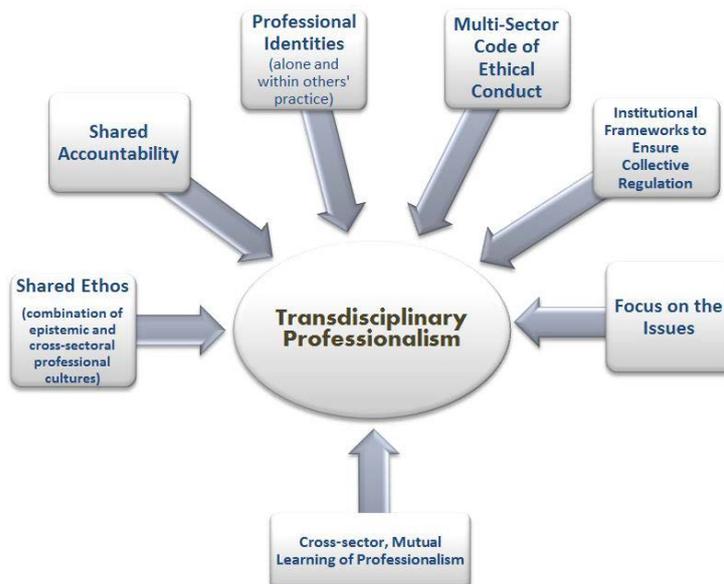


Figure 1 Proposed dimensions of transdisciplinary professionalism

## General overview

Transdisciplinary professionalism transcends *normal* approaches to professionalism (see previous section). Incorporating transdisciplinary professionalism into Home Economics practice—creating a *new normal*—would require changes in the thinking of Home Economic professionals and the public. It “would involve issues of cross-[sector] communication, differing values of multiple stakeholders, implications for leadership and respectful interaction, accountability, and reciprocity ... between professionals, [individuals and families], and the public” (Cuff, 2014, p. 111). In addition to learning what it means to be professional in our own small area of practice, Home Economists would have to learn to identify, critique and *learn professionalism* in collaborative relationships across professions, disciplines, and other sectors.

## Shared ethos

Transdisciplinary professionalism would comprise a fully integrated approach amongst disciplines and other actors as they work together to create, profess, and apply a *shared ethos* (shared attributes of a culture) (Wynia, Kishore, & Belar, 2014). A whole new culture evolves during transdisciplinary work. Working within this new culture, while remaining grounded in the Home Economics professional culture, would be a powerful opportunity for our profession. In order to ensure a shared ethos, Home Economics would have to move beyond its familiar professional and disciplinary ethos. If engaged in transdisciplinary work, guided by transdisciplinary professionalism, we would have to reconcile the ethical relationship *across multiple* disciplines and professions as well as members of society and other sectors.

There are some challenges to this for our profession. Each discipline and profession has an ethos, a culture. Home economics is *both* a discipline and a profession. Regarding the former, an epistemic culture is the culture within *a discipline* that sustains and regulates core assumptions about knowing within *that* discipline (Knorr Cetina, 1999). A professional culture refers to patterns, characteristics and traits expressed by a particular group that belongs to a certain *profession* (Kieren et al., 1984). “Professionals tend to adopt the value system and develop behaviour patterns consistent with their peers; they learn to ‘walk and talk’ alike” (International Civil Aviation Organization, 2013, p. 2-11).

Home economists have to realize that a professional culture is different from the epistemic culture of the attendant discipline area; that is, it is different from the knowledge, methods, validity, and scope of the companion discipline (McWilliam, Hearn, & Haseman, 2008). For Home Economics, which is both a discipline and a profession, this distinction matters. Brown and Paolucci (1979) shared a deep discussion of how the Home Economics discipline comes to know and create knowledge (i.e., its epistemic culture). An integral part of professionalism in general is being able to identify, critique and employ a unique body of disciplinary knowledge, using profession-specific competencies and skills (Epstein & Hunder, 2002; Kieren

et al., 1984). Transdisciplinary professionalism challenges us to embrace a shared ethos in an emergent multi-sector culture, comprising people who do not normally work together.

### Shared accountability

Because transdisciplinary professionalism crosses sectoral boundaries, people have to rethink the concept of accountability. Accountable means being *able to account* for one's actions and decisions (i.e., give a satisfactory explanation). People are accountable *if* they can neutrally and accurately report on the sequence of their choices leading to the consequences (Planned Success Institute, 2002). People *take* responsibility but are *held* accountable (by themselves or others) (McGregor, 2014a). Transdisciplinary professionalism would have shared accountabilities as well as a shared ethos. All participants would be held accountable to each other, the process, and the value of professionalism (Cuff, 2014). Home economists' obligations for accountability would transcend those they have for their professional groups and the people they serve. If people do not value professionalism, it will be difficult to hold the transdisciplinary initiative accountable.

While striving for *shared* accountability, diverse practitioners working on a postnormal issue would need to develop radical new means of thinking and acting collaboratively. They would need to document and recount collective work so they can be held to task for the consequences of any actions predicated on their decisions. This *transaccountability* would entail innovative and effective ways to transfer collaborative skills, values, and behaviors. It would also provide leadership that fosters ongoing research and innovation pursuant to addressing the postnormal issue. Another challenge to shared accountability would be to jointly identify desirable outcomes and decide how to best measure them, if indeed they are measurable (Cuff, 2014).

### Professional identity

Each person enters their practice with a professional identity, understood to be a person's self-concept as a professional (shaped by values, beliefs, attitudes). Transdisciplinary professionalism would mean Home Economists would retain this professional identity while at the same time building another identity when working within others' practice and elsewhere (Burman, 2013). The transdisciplinary professional identity is a temporary one, changing with each transdisciplinary initiative. Developing an identity as a transprofessional practitioner is a challenge because it is difficult for people to shift their mind set from an ongoing one to a temporary one (in play during transcollaborations); they simply are not familiar with others' perspectives. This transient identity evolves during transprofessional collaboration, and is said to occur when translation is no longer necessary between disparate collaborators because each person has fully integrated the others' unique contributions (Chiocchio & Richer, 2015; Maguire, 2015; McGregor & Volckmann, 2011). Eventually, transprofessional *team knowledge* emerges (Brylina et al., 2014), akin to transdisciplinary synergistic knowledge (McGregor, 2015).

In the meantime, in order for transdisciplinary professional identities to evolve, deep respect must abound for the role of conflict mediation, negotiations, and resolutions during transdisciplinary engagements (McGregor, 2011b; McGregor & Volckmann, 2011). To that end,

when engaging in transdisciplinary professionalism, Home Economists would need to work with others to create a common language that can transcend stakeholder-specific jargon, thus making it easier to communicate with each other (Austin, Park, & Goble, 2008; Cuff, 2014; McGregor & Volckmann, 2011). Granted, this will be a difficult task given that all language is loaded with meaning as well as cultural, social and geographic knowledge. But with many years of research, discussion, collaboration, translations and persistence, it is a realizable goal.

### **Institutional frameworks**

Existing professionals are required to be familiar with their guiding institutional frameworks including codes of ethics, regulations, standards, self-regulation, and laws. Meaningful transdisciplinary professionalism would necessitate the creation of new institutional frameworks. The creation of these new frameworks would require an ongoing multi-sector forum rather than just one-time efforts (Wynia et al., 2014). Professionals are cognizant of the necessity of working within the institutional frameworks for their practice to make the profession strong and sustainable. Transdisciplinary professionalism raises the fear that transgressions across professional boundaries might weaken the status of groups that may already be subject to professional insecurity (Taylor & McEwan, 2012), including Home Economics (Pendergast & McGregor, 2007). Any new institutional frameworks must be mindful of individual professions' insecurities.

Evetts (2003) recognized this concern when she characterized professionalism as an ideology (a hegemonic belief system) rather than a normative value system. She said professions have a dual character, public interest and self-interest. Respectively, (a) they include the provision of service to the public (public interest), and (b) the use of knowledge and power for economic gain (private interest) and to assert legitimacy (self interest). Evetts (2003) maintained that professionalism can be used as a mechanism of professional change and protection (see also Moody, Petty, & Giglio, 2015). In order to both protect the public and control the profession's market position, professionalism is used as a reason to control the licensing and certification of people in a profession. Transdisciplinary institutional frameworks would transcend this reality, while respecting it.

### **Multi-sector code of conduct**

The behaviour of professionals is shaped by their beliefs, which in turn characterize their professionalism. Standards for professionalism are found in ethical codes of conduct. Despite that most professions have their own code (including Home Economics), it might be necessary to consider a multi-sector ethical code when dealing with transdisciplinary professionalism. Without such multi-sector codes of behaviour, the issues of unethical behaviour of professionals can have lasting effects on other stakeholders who may experience or perceive injustice and breaches of trust during the transdisciplinary work. Home Economists would also have to remain attuned to fiduciary and trust relationships when engaging with the other actors who are jointly concerned with the complex problem (see Cuff, 2014). Fiduciary means placing one's complete confidence in another. It could be argued that individuals and families place their trust in Home Economists to represent their interests. Transdisciplinary professionalism entails Home Economists respecting this fiduciary trust while addressing the

larger issue at hand. Any multi-sector code of conduct for transdisciplinary professionalism should respect this concern for all sectors involved in the initiative.

### Focus on the issue

Burman (2013) clarified that the focus of transdisciplinary professionalism would be the *issue* itself and not the client being served by the professional. Some Home Economists may resist this tenet of transdisciplinary professionalism. The profession has historically been concerned with the individual and the family experiencing the issue *rather than* the issue per se (Brown, 1980, 1993; Kieren et al., 1984). Not that we are not concerned with poverty, inequality, or injustice, but we have tended to pay attention to the symptoms experienced by families and not the underlying ideological and paradigmatic issues. Such issues include abuses of power, injustice, inequality, discrimination, social disequilibrium, unsustainability, and aggression. Providing families with technical information about malnutrition does not get at the root of the problem, which is the issue of inadequate food distribution in society due to inequality and injustice (Brown, 1993).

Focusing on *the issue* creates a space for as many perspectives as possible instead of limiting the contemplation to one profession or sector and what it alone can contribute. Doing so from a transdisciplinary stance (beyond disciplines and transcending professions) exponentially multiplies the richness of solutions. If disparate sectors cannot remain open to others' perspectives, the larger *issue* (with its many interpretations) cannot be presented, deliberated, and addressed. The solution of complex, postnormal problems entails iterative boundary crossing and collaborative work that transcends known borders. Transcend means climbing up and over to a new space (McGregor & Donnelly, 2014). Transcending sectoral borders to reach new spaces (insights, perspectives, views, opinions) ensures a richer profile of *the issue* at hand, rather than one particular sector's position. This transsector work, shaped by transdisciplinary professionalism, means *the issue* becomes the focus and not the people directly experiencing it. The latter matter, but how their circumstances will be addressed depends on how *the issue* is framed and understood.

In summary, each transdisciplinary initiative intent on addressing a complex, postnormal problem would be characterized by these six aspects of transdisciplinary professionalism: the development of a shared ethos, the accommodation of shared accountability, the evolution of professional identities, the development of a multi-sector code of conduct, the creation of new institutional frameworks, and a concerted focus on the issue at hand. If a Home Economist engaged with a different collection of people on a different issue, a new transdisciplinary professionalism profile would emerge for that context, but remain grounded in these six fundamental dimensions. Figure 2 provides a succinct overview of the difference between Home Economics professionalism and transdisciplinary professionalism. Each time they enter a transdisciplinary initiative, Home Economists would have to (re)learn professionalism *for that context*.

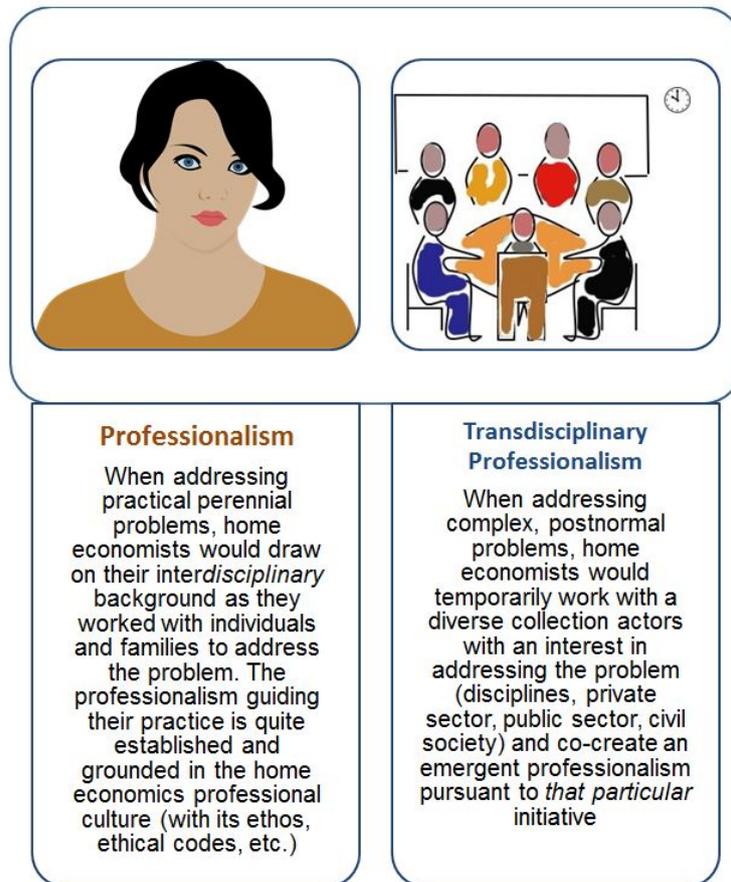


Figure 2 Home economics professionalism and transdisciplinary professionalism

### Applying principles of transdisciplinary professionalism

McDaniel, Campbell, Rosenberg, Schultz, and deGruy (2014) shared insightful ideas about how to apply some of the principles of transdisciplinary professionalism. These ideas have merit for any Home Economics transdisciplinary work initiative. First, many transdisciplinary initiatives encounter tribalism (“I’m OK and you’re not”). The best way to overcome tribalism is exposing it for what it is, and then challenging it. Find ways to tease out the perceptions, biases and stereotypes (negative images) of all sectors engaged with the complex problem, and use those insights for dialogue about how to effectively work together and respect each other. Second, a key aspect of transdisciplinary professionalism is communication. Multiple communications amongst diverse actors are challenging and deeply affected by emotions. People can improve transdisciplinary team communication by explicitly working on relationships and skills pursuant to team collaborations, and then striving to generalize across the transdisciplinary team (McDaniel et al., 2014).

Third, transdisciplinary teams work best when there is trust, conflict management, commitment, accountability, and a focus on issues and results. The lynch pin is trust. It requires vulnerability, meaning the ability to open up around unfamiliar others (with their own agendas and motivations). Transdisciplinary teams must become comfortable with

making mistakes, showing weakness, and expressing fears. These traits lead to trust developing across disciplines and societal sectors. Transdisciplinary professionalism flourishes in a culture of trust. Fourth, transdisciplinary professionalism depends on conflict management. People have to learn to refrain from dismissing differences and instead control for their discomfort. The latter manifests in anxiety or embarrassment, both of which have to be managed if diverse voices are to be expressed, heard, respected, and integrated (McDaniel et al., 2014).

Finally, transdisciplinary professionals need to create a culture that welcomes feedback rather than avoids it. Feedback entails responses that will ideally be used for improvement and modifications of original input. “[A] necessary foundation of transdisciplinary professionalism is openness to feedback, diminishment of professional hubris, and respect for the value that other disciplines [and sectors] bring—the idea that we all have blind spots, do not know everything, are constantly missing things, can improve our practice in critical ways, and, most importantly, can learn from others who are not of the same discipline” (Watson as cited in McDaniel et al., 2014, p. 107). Both power and communication within transdisciplinary initiatives hinge on approaches to dealing with feedback.

## Conclusion

This paper developed the idea that in order to practice in postnormal times, Home Economists should consider transdisciplinary professionalism. Johnson (2010) claimed that it takes a long time for one person’s hunch to evolve into a useful and successful idea. But, I have a hunch this idea has merit for the profession. Home Economists are invited to engage with the potential of transdisciplinary professionalism. Reframing our professionalism through a transdisciplinary lens lets us explicitly acknowledge the challenges of postnormal times: chaos, complexity, and contradictions. It helps us resist these seemingly negative orientations and re-envision them as opportunities, possibilities, and potentialities.

Transdisciplinary professionalism respects our longtime inclination to draw on many *disciplines* to garner the knowledge needed to address perennial problems. And, as a personal service profession, we have always been socialized to work with the people who will be affected by our actions (Brown, 1980). That being said, transdisciplinary professionalism respects the voices and perspectives of other sectors as well. It challenges us to engage with other ways of knowing aside from just interdisciplinary knowledge and family-based knowing. Postnormal problems couched in chaos, uncertainty and contradictions compel us to draw on as many voices as possible, not just our own Home Economics voice. And working with this myriad of voices requires a new form of professionalism.

Importantly, transdisciplinary professionalism enables Home Economists to place the imperatives of postnormal times at the core of our practice. It helps us transcend our longstanding view of professionalism, which focused on working with individuals and families. Transdisciplinary professionalism *focuses on the issues*, which can best be addressed via iterative border crossings and cross-fertilization of disparate worldviews and perspectives. To practice in this postnormal milieu, Home Economists need a new approach to professionalism, replete with new skills, enriched judgments, and responsible and accountable, shared behavior. Transdisciplinary professionalism would go a long way toward positioning the Home

Economics profession as it copes with, understands, critiques, and influences postnormal times.

## Biography

*Sue L. T. McGregor, PhD Professor Emerita (MSVU), is a Canadian home economist (45 years) with a keen interest in transdisciplinarity, integral studies, complexity, and transformative practice. She is Docent in Home Economics at the University of Helsinki, a Kappa Omicron Nu Research Fellow (leadership), and an TheATLAS Transdisciplinary Fellow. She has published 4 books: Creating Home Economics Futures (2012, co-edited with Donna Pendergast and Kaija Turkki), Transversity (2011, with Russ Volckmann), Consumer Moral Leadership (2010), and Transformative Practice (2006). She is a Principal Consultant for The McGregor Consulting Group (founded in 1991) <http://www.consultmcgregor.com>*

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## Relationship between socioeconomic inequality and dietary diversity among schoolchildren in Southwestern Nigeria

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### Abstract

*This study aimed to assess socioeconomic inequalities and the relationship with dietary diversity of schoolchildren in a region of southwestern, Nigeria. A cross-sectional study of 600 schoolchildren attending both private and public schools. A standardized FAO-published 24-hour diet recall questionnaire for calculating a Dietary Diversity Score (DDS) was adapted and used to collect dietary diversity data. A structured interview was also used to elicit information on possession of household assets which was used as a proxy for wealth. Respondents were classified as low, moderate, and high according to level of dietary diversity and wealth status. Logistic regression analysis was used to assess the association between dietary diversity and wealth status. Data were disaggregated according to public and private schools attended by the schoolchildren. Mean age was  $8.28 \pm 1.44$  years; household size was  $6.43 \pm 2.26$  individuals. Both age and household size were higher in public than in private schools. For wealth status, 39.3% of private schoolchildren were categorized as high compared to 32.0% of public schoolchildren. For DDS, 30.0% of private schoolchildren were categorized as high compared to 18.3% in public schools. Private schoolchildren in high (OR = 1.05, CI = 0.51-2.18) and moderate (OR = 1.25, CI = 0.05-3.16) wealth categories had an increased DDS compared with the low wealth status group. Among public schoolchildren, only the high wealth status group had a likelihood of increased DDS (OR = 1.84, CI = 0.37-2.10). DDS was related to higher wealth status in schoolchildren. Wealth-related inequalities existed for children from both private and public schools. Socioeconomic inequalities determined the dietary diversity score of schoolchildren in the region of southwestern Nigeria.*

**Key words:** Dietary diversity, wealth status, schoolchildren, Nigeria.

### Introduction

Nutrition of school-aged children has been a matter of concern for some time and it is a major factor affecting children's overall development and learning (Florence, Asbridge, & Veugelers, 2008; Ijarotimi & Ijadunola, 2007). Socioeconomic status of households has been identified by various authors as a determinant of the quality (Erber et al., 2010) and quantity (Grimes, Campbell, Riddell, & Nowson, 2013) of food to which children have access.

Socioeconomic status (SES) is often measured as a combination of education, income, and occupation. It is commonly conceptualized as the social standing or class of an individual or group. Furthermore, an examination of SES as a gradient or continuous variable reveals inequalities in access to and distribution of resources (American Psychological Association

[APA], 2004). For the purpose of this study, wealth status was determined by the possession of certain household assets and was used to assess SES (Houweling, Kunst, & Mackenbach, 2003; Ergin, Hur, & Anton, 2012).

Variance in socioeconomic status, including disparities in the distribution of wealth, income, and access to resources (Edin & Kefalas, 2005) has affected the food intake of households and, in particular, women and children (Olumakaiye & Ajayi, 2006). Research indicates that SES is a key factor in determining the quality of life for women, with resulting effects on the lives of children and families. Inequalities in wealth and quality of life for women are long-standing and exist both locally and globally (US Census Bureau, 2006). Low SES as well as its correlates such as poverty, lower education, and poor health for children and families, ultimately affect society as a whole (US Census Bureau, 2006).

Access to quality food is an important aspect of life. Household food access is defined as the ability to acquire sufficient quality and quantity of food to meet all household members' nutritional requirements for productive lives. Dietary diversity has long been recognized as a key element of high-quality diets. Household dietary diversity, defined as the number of unique foods consumed by household members over a given period, has been validated as a useful approach for measuring household food access, particularly when resources for undertaking such measurement are scarce (Food and Nutrition Technical Assistance [FANTA], 2004). Studies in Bangladesh (Arimond, Torheim, Wiesmann, Joseph, & Carriquiry, 2007), Mozambique (Wiesmann, Arimond, & Loechi, 2009), and the Philippines (Daniels, 2009) have shown that an increase in individual dietary diversity score is related to increased nutrient adequacy in diets.

In Nigeria, nutritional data on schoolchildren are scarce. Unfortunately, Demographic and Health Surveys (DHS), which provide data on food intake at the national level in the country, do not include schoolchildren (Fotso, 2007). Although they are a vulnerable age group, socioeconomic inequalities in relation to dietary diversity have not been documented.

The purpose of this study was to investigate the socioeconomic status of schoolchildren and its association with dietary diversity.

## **Methods**

### **Study area and sampling**

The data were collected from primary schoolchildren, aged 6-11 years, from Ile-Ife Local Government Area of Osun State, in Southwest Nigeria. A multistage random sampling technique was used to select the schools from the local government areas in the study. The area under study was divided into three regions and the primary schools in each region were stratified into private and public schools. Two schools were randomly selected from each stratification, resulting in a sample of six private and six public schools. Schools that operated boarding house systems were excluded from the survey.

A multistage random sampling technique was also used to select the students. The sample size was determined using the table designed by Research Advisor (2006) that suggests the

optimal sample size—given a population size, a specific margin of error, and a desired confidence interval. The population size of the six schools investigated as at the time of this study was 2,895, therefore, to maintain a confidence interval of 95% and margin error of 3.5, the minimum sample size was 597. A total of 625 school children were interviewed, but only data from 600 schoolchildren were included for analyses after removal of incomplete responses. The population of the study was divided among the schools using a simple percentage. Ten percent of students were selected from each school. One out of five school children was selected randomly from a classroom using the school register.

### **Research instruments**

Data for the study were collected using a face-to-face interview in a separate room, during which the children's characteristics were obtained, as well as dietary diversity measures.

Characteristics elicited from the children included sex, date of birth, household size, position of child among siblings, and mode of transport to school. The interview guide was translated to the local language for those who were not fluent in English, and later translated back to English for analysis. Field workers were trained by the researcher to ask the questions and fill out the questionnaires on behalf of the schoolchildren.

### **Wealth status**

Household wealth was measured by asking about the possession of 11 household assets. The ownership of each item was scored as 1, while non-possession was scored as 0. Scores were summed to define the total household wealth score for each respondent. The wealth score was determined as high (8-11), moderate (6-7), and low (less than 6), and used as a proxy for socioeconomic status of the respondents (Ergin et al., 2012).

### **Dietary diversity**

A standardized dietary diversity questionnaire from FANTA Household Dietary Diversity Score Indicator Guide (Kennedy, Ballard, & Dop, 2011) was adapted to calculate the Dietary Diversity Score (DDS) of the schoolchildren (Swindale & Bilinsky, 2006). The questionnaire is composed of seventeen food groups; food items that were relevant to the study population/area were added to the list of foods per group while foreign food items were removed. The school children were asked to list everything they ate in the preceding 24 hours (24-hour dietary recall). All meals and snacks eaten both at school and at home were probed. Children in grades one through three in public primary schools were fed in school through the state school feeding program, while children from private schools carried a packed lunch from home or purchased foods from vendors. The DDS was a simple count of food groups that the children consumed, with the purpose of reflecting nutrient adequacy. An increase in DDS is related to increased nutrient adequacy of the diet (Kennedy, Ballard, & Dop, 2011; Kennedy, Pedro, Seghieri, Nantel, & Brouwer, 2007; Ruel, Graham, Murphy, & Allen, 2004; Steyn, Nel, Nantel, Kennedy, & Labadarios, 2006).

### Validity and reliability of research instrument

Overall content validity was carried out to ensure that the questionnaire collected and measured the information required within the framework of the research objectives. The test-retest reliability method was used to determine the reliability. The questionnaire was tested in a separate population of 20 students not in the study area. Two weeks later, the same questionnaire was administered, and the results compared. The coefficient of 0.72 was obtained, hence showing content validity of the questionnaire. Faults that were detected were corrected before carrying out the research in the target population.

### Ethics

The University Research Committee, through the Department of Family, Nutrition and Consumer Sciences of Obafemi Awolowo University, Ile Ife, Nigeria, approved the study. Ethical clearance was obtained from the State Ministry of Education before visiting the schools, and consent papers were signed by the parents of the selected children. The children themselves also agreed orally to participate in the study.

### Data analyses

Data were entered and processed using SPSS version 16.0 (Statistical Package for the Social Sciences, Chicago, IL, USA) software for analysis involving descriptive and inferential statistical methods. Data was disaggregated into private and public primary school students. The frequency of occurrence and percentages of the various parameters were presented in tables. T-test analysis was used to examine difference; likewise correlation analysis was conducted to determine the relationships. Logistic regression was used to calculate the odd ratios and confidence intervals of the socioeconomic variables and dietary diversity. All inferences were made at a significance level of  $p < 0.05$ .

## Results

### Child characteristics

There was an equal distribution (50%) of respondents from both private and public schools. Mean age of respondents was  $8.28 \pm 1.44$  years, and mean household size was  $6.43 \pm 2.26$  individuals (Table 1). Overall, 79.2% of the respondents reported they were less or equal to fourth position among other siblings, while 44.2% of schoolchildren trekked to school. There were significant differences in the age ( $p = 0.000$ ) and mode of transport to school ( $p = 0.016$ ) between private and public schoolchildren.

Table 1 Child characteristics of pupils attending private and public schools

Variables	Private School n = 300 Freq (%)	Public School n = 300 Freq (%)	Total Sample n = 600 Freq (%)	P value
Sex				
Male	140 (46.7)	170 (56.7)	310 (51.7)	
Female	160 (53.3)	130 (43.3)	290 (48.3)	0.181

Variables	Private School n = 300 Freq (%)	Public School n = 300 Freq (%)	Total Sample n = 600 Freq (%)	P value
<b>Age</b>				
Mean ±SD	7.43±0.81	9.12±1.44	8.28±1.44	
6-8years	280 (93.3)	95 (31.7)	375 (62.5)	
9-11	20 (6.7)	205 (68.3)	225 (37.5)	0.000*
<b>Household size</b>				
Mean ±SD	5.92±1.84	7.03±2.50	6.43±2.26	
≤6	140 (46.7)	80 (26.7)	220 (36.7)	
7-10	150 (50.0)	205 (68.3)	355 (59.2)	0.068
>10	10 (3.3)	15 (5.0)	25 (4.1)	
<b>Position of child among siblings</b>				
≤4	265 (88.3)	210 (70.0)	475 (79.2)	
5-8	30 (10.0)	85 (28.3)	115 (19.2)	0.226
>8	5 (1.7)	5 (1.7)	10 (1.6)	
<b>Mode of transport to school</b>				
Trekking	95 (31.7)	170 (56.7)	265 (44.2)	
Public Transport	50 (16.6)	50 (16.6)	100 (16.7)	
Private car	125 (41.7)	75 (25.0)	200 (33.3)	0.016*
School bus	30 (10.0)	5 (1.7)	35 (5.8)	

\* Significant at p <0.05

### Household assets

Results of possession of household assets indicated private schoolchildren possessed more assets than public schoolchildren (Table 2). The least possessed assets were a washing machine and a vacuum cleaner.

Table 2 Percentage of household assets used as proxy for wealth status

Household Assets	Private School n = 300 Freq (%)	Public School n = 300 Freq (%)	Total Sample n = 600 Freq (%)
Television set	298 (99.3)	213 (71.0)	511(85.2)
Video/CD/DVD	254 (84.7)	198 (66.0)	452 (75.3)
DSTV	183 (61.0)	93 (31.0)	276 (46.0)
Washing machine	25 (8.3)	2 (0.7)	27 (4.5)
Vacuum cleaner	16 (5.3)	-	16 (2.7)
Microwave oven	135 (45.0)	6 (2.0)	141 (23.5)
Gas/electric cooker	201 (67.0)	67 (22.3)	268 (44.7)
Deep freezer	98 (32.7)	11 (3.7)	109 (18.2)
Mobile/cellular phone*	300 (100.0)	257 (85.7)	557 (92.8)
Desktop/laptop Computer	205 (68.3)	87 (29.0)	292 (48.7)
Access to internet	106 (35.3)	46 (15.3)	152 (25.3)

\*owned by any of the parents

Level of possession of the household assets, which was used as a proxy for wealth status, showed that wealth-related inequalities existed between schoolchildren from both school types ( $p = 0.002$ ) (Table 3). More private schoolchildren were rated high in wealth status compared to public schoolchildren.

Table 3 Level of possession of household assets used as proxy for wealth status by school type

Wealth Status	Private School n = 300 Freq (%)	Public School n = 300 Freq (%)	Total Sample n = 600 Freq (%)	P value
High ( $\geq 8$ )	118 (39.3)	96 (32.0)	214 (35.7)	
Moderate (6-7)	98 (32.7)	42 (14.0)	140 (23.3)	0.002*
Low ( $\leq 5$ )	84 (28.0)	162 (54.0)	246 (41.0)	

Mean = 6.24, Standard deviation = 1.67; \* Significant at  $p < 0.05$

### Dietary diversity

For dietary diversity, significant differences were observed between private and public schoolchildren in the consumption of five groups out of the seventeen food groups investigated (Table 4). Overall, organ meats, milk/milk products, eggs, and vitamin A-rich fruits and vegetables/tubers were the groups least consumed by the students. Significant differences were found for all of these groups between the two student groups, with private school students reporting a higher consumption of eggs ( $p = 0.003$ ), vitamin-A rich fruits ( $p = 0.025$ ), organ meats ( $p = 0.031$ ), vitamin-A rich vegetables/tubers ( $p = 0.033$ ), and milk ( $p = 0.040$ ).

Table 4 Dietary Diversity of the pupils attending private and public schools

Food group	Private School n = 300 Freq (%)	Public School n = 300 Freq (%)	Total Sample n = 600 Freq (%)	P value
Cereals	300 (100.0)	300 (100.0)	600 (100.0)	0.624
White roots and tubers	292 (97.3)	300 (100.0)	592 (98.7)	0.441
Vitamin A rich vegetables/tuber	97 (32.3)	23 (7.7)	120 (20.0)	0.033*
Dark green leafy vegetables	151 (50.3)	146 (48.7)	297 (49.5)	0.271
Other vegetables	300 (100.0)	300 (100)	600 (100.0)	0.624
Vitamin A rich fruits	86 (28.7)	23 (7.7)	109 (18.1)	0.025*
Other fruits	76 (25.3)	69 (23.0)	145 (24.2)	0.456
Organ meats	24 (8.0)	2 (0.7)	26 (4.3)	0.031*
Flesh meats	136 (45.3)	124 (41.3)	260 (43.3)	0.501
Eggs	58 (19.3)	12 (4.0)	70 (11.7)	0.003*
Fish/sea foods	178 (59.3)	154 (51.3)	332 (55.3)	0.421
Legumes, nuts and seeds	257 (85.7)	286 (95.3)	543 (90.5)	0.337
Milk/milk products	57 (19.0)	12 (4.0)	69 (11.5)	0.040*
Oils/fats	249 (83.0)	244 (81.3)	493 (82.2)	0.611
Red palm product	249 (83.0)	258 (86.0)	507 (84.5)	0.532
Sweets	143 (47.7)	123 (41.0)	266 (44.3)	0.461
Spices/condiments	278 (92.7)	282 (94.0)	560 (93.3)	0.554

\* Significant at  $p < 0.05$

**Level of dietary diversity**

Significant inequalities ( $p = 0.034$ ) existed in dietary diversity between the two school types with scale ratings of low ( $DDS \leq 7$ ), moderate ( $DDS = 8-10$ ), and high ( $DDS > 10$ ) (Table 5 and Figure 1). More private schoolchildren were rated as having high (30.0%) and moderate (53.3%) dietary diversity compared to public schoolchildren ( $p = 0.034$ )

Table 5 Level of dietary diversity by school type

Dietary Diversity Score	Private School n = 300 Freq (%)	Public School n = 300 Freq (%)	Total Sample n = 600 Freq (%)	P value
High (>10)	90 (30.0)	55 (18.3)	145 (24.2)	
Moderate (8-10)	160 (53.3)	140 (46.7)	300 (50.0)	0.034*
Low ( $\leq 7$ )	50 (16.7)	105 (35.0)	155 (25.8)	
Mean $\pm$ SD	9.02 $\pm$ 1.73	8.27 $\pm$ 1.41	8.73 $\pm$ 1.64	

\*Significant at  $P < 0.05$

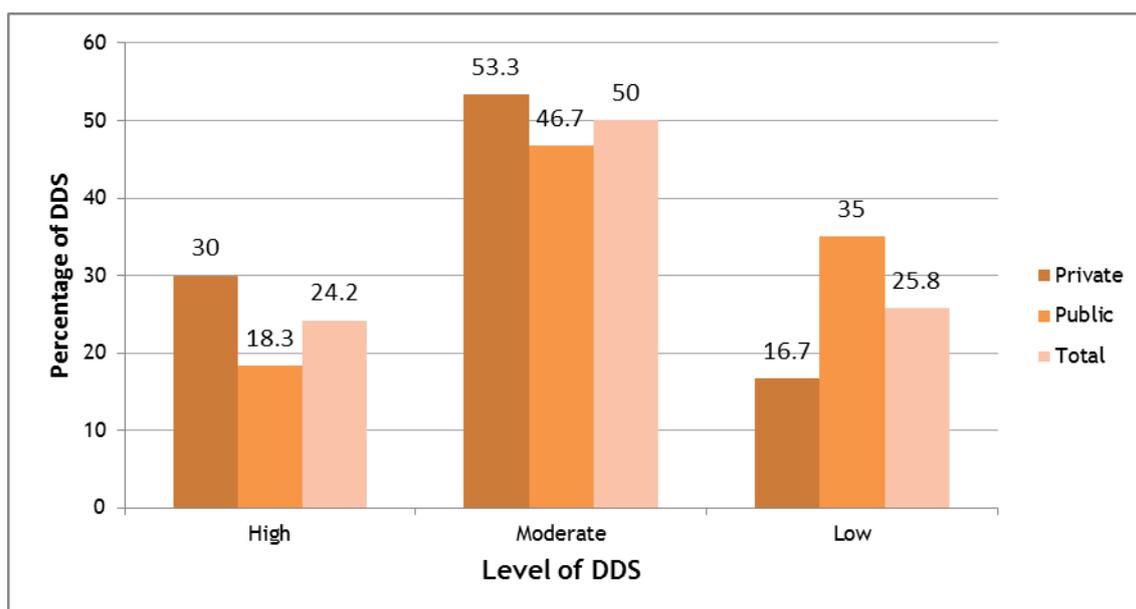


Figure 1 Level of dietary diversity by school type

**Association between dietary diversity score and wealth status (socioeconomic status)**

Logistic regression analysis between level of DDS and level of wealth status (Table 6) revealed that high ( $OR = 1.05$ ,  $CI = 0.51-2.18$ ) and moderate ( $OR = 1.25$ ,  $CI = 0.05-3.16$ ) wealth categories in private schoolchildren had an increased DDS compared with the low wealth status group. DDS steadily increased with increasing level of household wealth among private schoolchildren. Among public schoolchildren, only the high wealth status group had a likelihood of increased DDS ( $OR = 1.84$ ,  $CI = 0.37-2.10$ ). Dietary diversity inequalities were more obvious than wealth inequalities, especially for public schoolchildren. DDS was much

lower among the high wealth group in public schools (OR = 0.88) compared to the comparable group in private schools (OR = 2.18).

Table 6 Odds ratios and 95% confidence intervals for dietary diversity according to school type and wealth status of school children

	Private School n = 300 Freq (%)	OR	95% CI	Public School n = 300 Freq (%)	OR	95% CI
<b>Wealth Status</b>						
High	118 (39.3)	1.05*	0.51, 2.18	96 (32.0)	1.84*	0.37, 2.10
Moderate	98 (32.7)	1.25*	0.05, 3.16	42 (14.0)	1.09	0.65, 1.82
Low (reference)	84 (28.0)	1.00		162 (54.0)	1.00	
<b>Dietary diversity</b>						
High	90 (30.0)	2.18*	1.08, 4.40	55 (18.3)	0.88*	1.16, 2.87
Moderate	160 (53.3)	1.09*	0.49, 2.40	140 (46.7)	1.45	0.92, 2.26
Low (reference)	50 (16.7)	1.00		105 (35.0)	1.00	

## Discussion

These findings revealed significant differences between the age range of schoolchildren in private schools compared to those in public schools. Private schoolchildren appear to start school at a younger age than public schoolchildren. The age at which a child starts school and their mode of transportation to school is largely dependent on the socioeconomic class of the parents (Berlinski, Galiani, & Manacorda, 2008; Olanrewaju, 2011). The ideal age for school enrolment is 6 years; however, the inception of privately-owned elementary schools has resulted in children being admitted at younger age.

With regard to food consumption, there is a difference in the food groups consumed by both groups. Consumption of vitamin A-rich vegetables/tubers/fruits, organ meats, and eggs, as well as milk/milk products were higher for children in private schools than children in public schools. This corroborated results from studies conducted by Moffat and Galloway (2008) in Ontario and Serra-Majem, García-Closas, Ribas, Pérez-Rodrigo, & Aranceta (2001) in Spain, who also found that schoolchildren consume less than required amounts of milk, fruits and vegetables. Other studies conducted in South Africa (Temple, Steyn, Myburgh, & Nel, 2006) and in Morocco (Aboussaleh, Ahami, & Afechtal, 2013) also found that schoolchildren consume more unhealthy foods than healthy foods such as milk, fruits, and vegetables. The same trend was similarly recorded among preschool children in Burundi and Congo (Ekesa, Blomme, & Garming, 2011).

In the present study, the pattern in DDS observed among the schoolchildren indicated that dietary diversity was higher for private schoolchildren compared with the public schoolchildren. A higher dietary diversity score was also related to higher socioeconomic status (wealth status). This is in agreement with research conducted in Iran and India where

higher DDS related to higher body mass index of urban primary schoolchildren (Udipi & Hooshmand, 2013). In Morocco, however, higher DDS was recorded among rural schoolchildren (Aboussaleh et al., 2013).

Household wealth status was determined by counting household assets. The use of indicators based on household assets has been shown to be useful for mapping health inequalities (Houweling et al., 2003). Mohammadi et al. (2012) also agreed that possession of household assets was an indicative of household food security. Income has been found to be less adequate compared with accumulated household assets in measuring the magnitude of socioeconomic inequalities (Schaap, van Agt, & Kunst, 2008; Romieu et al., 2012). The high level of wealth status recorded among private schoolchildren in relation to dietary diversity suggested that this group has moved from limited food consumption of food varieties to a situation of more diverse diet, which indicated a better food intake.

In conclusion, the study showed an inequality in the socioeconomic status of the schoolchildren. This has implications on dietary diversity, which was higher among schoolchildren with higher household wealth. It is therefore recommended that the parents of students in public schools should be empowered economically to improve their wealth status. Likewise, nutrition education should be introduced at elementary school level to inculcate the habit of choosing healthy foods early in life.

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## Methodological helps, curriculum inquiry and Home Economics teacher professional development

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### Abstract

*Current teacher education programs (pre-service and in-service) increasingly promote inquiry- oriented approaches to professional development. This paper focuses on conceptualizing inquiry and creating a conceptual framework for a professional development course titled Curriculum Inquiry in Home Economics Education. The course was developed as an approach to understanding Home Economics curriculum and pedagogy by exploring various modes of inquiry. It locates inquiry in the literature of teacher action research, self- study, narrative study, content analysis, discourse analysis, curriculum analysis, and historical study.*

**Key words:** Curriculum Inquiry, Home Economics Education

### Setting the context

In response to the increasing demand for Home Economics teachers our university decided to promote off campus and on-line courses for a Diploma in Home Economics Education. The decline in post- secondary Home Economics degree programs has led to a shortage of Home Economic teachers for secondary schools (Smith & de Zwart, 2010). It is not uncommon to have unqualified teachers filling Home Economics teacher positions, a practice that can be problematic as Håkansson (2015) found in Sweden. This diploma program consisted of ten courses that would give already certified teachers the credentials to teach Home Economics. Therefore those enrolled in the program were new to teaching Home Economics but not new to teaching. Five of the courses are offered on-line. Three of the on-line courses were developed to address content knowledge in textile studies, food studies and family studies. The other two on-line courses focused on curriculum, one on curriculum and pedagogy and the other on curriculum inquiry in Home Economics. We were charged with developing the curriculum inquiry course and thus began our conceptual research into *inquiry* and the ways that inquiry may be used as a pedagogical approach for learning and deepening thinking about the curriculum of Home Economics education. We based our conceptual research on the following question: Is it possible to design a professional course where participants gain a critical understanding of Home Economics curriculum and pedagogy through exploration of various modes of inquiry? We followed loosely the steps outlined by Jabareen (2009) for developing a conceptual framework: reading and categorizing; identifying and naming; categorizing and integrating.

### The rise of inquiry in teacher professional development

In the past 25 years, inquiry-oriented approaches to professional development have become more common in teacher education programs—both pre-service and in-service (e.g., Ball &

Cohen, 1999; Bullough & Gitlin, 1995; Campbell & Groundwater-Smith, 2013; Cochran-Smith & Lytle, 1993, 1999a, 1999b, 2009; Darling-Hammond, 2008; Putnam & Borko, 2000; Taaiamo, 2016). The term *inquiry-oriented approaches* encompasses an assortment of descriptors such as action research, teacher as researcher, participatory research, practitioner research, and developing a stance of inquiry, all of which share a commitment to bringing the participants of the study into the process of the inquiry. Inquiry-oriented approaches are often contrasted with traditional models of professional development that involve university researchers providing the theory, skills and knowledge about teaching and/or the dissemination of information or research to teachers by an outside expert—a top-down theory into practice model (e.g., Aditomo, Goodyear, Bliuc, & Ellis, 2013; Wideen, Mayer-Smith, & Moon, 1998). In contrast, inquiry-oriented approaches offer grass roots opportunities for practitioners to theorize practice, practice theorizing and improve practice from within (Bullough & Gitlin, 1995; Cochran-Smith & Lytle, 2009; Dana & Yendol-Silva, 2003; Smith, 1996).

Inquiry appears to have replaced *reflection* or *reflective practice* as informed by the theorizing of Donald Schön (1983, 1987) that has dominated Home Economics teacher education and professional development programs in Home Economics since the 1980s and 1990s (e.g., Vaines, 1988, 1997). The movement to *inquiry* may have been influenced by the fact that practitioners are frequently unaware of exactly how to be reflective. For example, Risko, Vukelich and Roskos (2002) found that although teacher educators share an intention to initiate reflective critique in their classes, they provide their students with little guidance on how to reflect.

### Exploring the meaning of inquiry

Inquiry has supplanted reflection as a 'slogan' in educational settings, but like its predecessor, reflective practice, it is often not well elaborated. The danger of a slogan is that it is often ambiguous, has potential multiple meanings and may be adopted without regard for the underlying values of social interests that it serves (Popkewitz, 1980). Tom (1986) noticed this in the 1980s and developed a set of three dimensions that reveal the various ways that inquiry could be conceptualized (see Figure 1). The dimensions were: what is deemed problematic; the model of inquiry; and the ontological status of the educational phenomenon. He claimed that there was no consensus on what aspect of teaching ought to be deemed problematic and proposed a continuum ranging from small areas such as teaching strategies and content knowledge to larger areas such as the political/ethical principles underlying teaching. Tom's review of inquiry literature at that time revealed four apparent models of inquiry: knowledge achieved through commonsense inquiry; knowledge achieved through disciplined inquiry; linking of knowledge and action through commonsense inquiry; and linkage of knowledge and action through discipline inquiry. Each model draws from different ontological commitments, from considering educational phenomenon as real, naturally occurring events from which law-like generalizations can be generated, to generalizations that are context and time sensitive, to considering educational phenomenon as socially constructed to be examined for the extent to which they serve certain purposes. Tom states, "Teacher educators frequently ignore, or are inattentive to, the issue of what assumptions they are making about the nature of educational phenomena" (p. 42). He concludes that "those of us who want to extend the inquiry capacity of teachers need to have

inquiry models that are conceptually sound and capable of being implemented in typical school situations” (p. 43). Figure 1 summarizes Tom’s approach.

<b>Arenas of the Problematic</b> (arranged by degree of comprehensiveness)			
Teaching-Learning Process	Subject Matter Knowledge	Political/Ethical Principles Underlying Teaching	Society including Educational Institutions
<b>Models of Inquiry</b> (arranged by scope—knowledge or knowledge/action arranged by rigor—commonsense inquiry or disciplined inquiry arranged by degree of guidance required)			
Knowledge Achieved Through Commonsense Inquiry (low rigor, narrow scope)	Knowledge Achieved Through Disciplined Inquiry (high rigor, narrow scope)	Linkage of Knowledge and Action Through Common Sense Inquiry (low rigor, broad scope)	Linkage of Knowledge and Action Through Disciplined Inquiry (high rigor, broad scope)
<b>Ontological Status of Educational Phenomena</b>			
Natural			Socially Constructed

Figure 1 Summary of Tom’s (1985) *Outline of Conceptions of Inquiry*

Nearly a decade later, Cochran-Smith and Lytle (1993; 1999a; 1999b; 2009) outlined another conceptual framework that focused on developing a stance of inquiry. They outlined differing understandings of knowledge and teacher learning: *knowledge-for-practice*; *knowledge-in-practice*; and *knowledge-of-practice*. Each has specific assumptions and implications. The provision of general content and pedagogical knowledge by university researchers for teachers to use is classified as *knowledge-for-practice*. It is assumed that “teachers are knowledge users, not generators” (Cochran-Smith & Lytle, 1999a, p. 257). This conforms to a traditional view of professional development where outside experts provide new knowledge or skills for practicing teachers. *Knowledge-in-practice* assumes that practical teaching knowledge comes through experience. Thus “teaching is a wise action in the midst of uncertain and changing situations” (Cochran-Smith & Lytle, 1999a, p. 266). Research in this area includes craft knowledge and personal practical knowledge. Teachers are understood to be the generators of knowledge who mediate ideas, construct meaning, and take action based on that knowledge. They inquire into practice, and use self-study. *Knowledge-of-practice* assumes that teachers play a central role in generating knowledge of practice by “making their classrooms and schools sites for inquiry, connecting their work in schools to larger issues, and taking a critical perspective on the theory and research of others” (Cochran-Smith & Lytle, 1999b, p. 273). Teachers’ relationship to knowledge is different from the previous conceptions in that they become researchers, theorizers, activists, and school leaders who generate knowledge for the profession and who also become critical users of research. This view is evident in professional programs that focus on teacher research, action research, and inquiry communities. *Knowledge-of-practice* also includes activities such as examining personal autobiographies and writing critical reflections.

The last two aspects of developing a stance of inquiry are advocated for Home Economics teacher professional development. Frequently they are characterized as action research (e.g., Hittman, 1989; Lahti, 2012; Peterat, 1997; Peterat & Smith, 2001; Pickard, 2004; Sikora & Alexander, 2004). Peterat and Smith (2001) indicate a preference for *research over inquiry*

stating “we want to de-mystify research” (p. 2) in order for practitioners to see the possibility of in-forming and forming practice from within. They distinguish types of action research on the basis of ideological perspectives, associated intellectual or philosophical traditions and rhetoric about action, and the purposes these types of action serve, for example, action research as scientific problem solving, as practical decision making, as emancipatory research, as interpretive research, as narrative research, and as grounded ethical practice. Scientific problem solving could involve hypothesis testing or the application of theories following the scientific method. Inquiry processes used to enhance the practical decision making of practitioners take a more eclectic approach, providing teachers with the means to gather data to expose the theories that they are using in order to change and improve their practice. Critical inquiries seek to expose oppressive ideologies and institutional power hierarchies that can then be challenged, freeing people from false consciousness and enhancing social justice. Narrative inquiries seek the power of stories to study and interpret educational experience. Ethical inquiries are more focused on the small prosaic decisions taken after much inner debate. They involve pondering ethical questions such as, *What knowledge is of most worth?*, *What should I teach?*, *How should I teach?*, and *What kind of relationship should I form with students?*

From this cursory examination of the literature on inquiry, we concluded that inquiry-oriented approaches can be described as practice based research that is intentional and visible, emphasizing the raising of questions about existing practices and seeking to understand and improve professional practice.

### Conceptualizing *curriculum inquiry*

When *curriculum* is added to inquiry it is important to be clear what we mean by curriculum. The way curriculum is understood and theorized has altered over the years and multiple conceptions abound. It has its origins in the running/chariot tracks of Greece. It was, literally, a racecourse. This meaning is still implied in modern use of the term, for example, when referring to the subject matter or course of studies taught to students, as in the Home Economics curriculum. Syllabi for courses are frequently called curriculum guides and teachers often say, “I have so much curriculum to cover”. This usage of curriculum generally refers to content; the knowledge, skills and attitudes to be taught as specified in curriculum guides. Evidence of this understanding of curriculum is shown in the discourse of goals and objectives to be achieved; the scope and sequence of a program of study; learning outcomes for various grade levels; examples of experiences to facilitate learning; and recommended textbooks and resources.

Another broader meaning of curriculum includes everything that contributes to what students learn in schools. Curriculum theorists who adopt this view often refer to five concurrent curricula (Posner, 2004):

- the official curriculum (e.g., curriculum guides, textbooks, etc.)
- the operational curriculum (what is actually taught by the teacher, e.g., what content is included and emphasized and what learning outcomes get the most attention)

- the hidden curriculum (messages students receive about knowledge, norms, values, behaviour from the school environment)
- the null curriculum (subject matter that is not taught and therefore students learn that it is not important, not valued)
- the extra curriculum (experiences offered for students outside of the school subjects).

According to Egan (1978), we imply inquiry when we use the term curriculum: "Curriculum is the study of any and all educational phenomena. It may draw on any external discipline for methodological help but does not allow the methodology to determine inquiry" (p. 16). Similarly, Schubert (2008) asserts that "curriculum inquiry is conceived as thought, study, and interpretation used to understand curriculum, which is characterized as experiential journeys that shape perspectives, dispositions, skills, and knowledge by which we live" (p. 399).

### ***Methodological helps for curriculum inquiry***

For our purposes, we decided that an inquiry-based professional development course should engage teachers in deliberate and systematic curriculum inquiry, in order to extend their understanding of curriculum in Home Economics education. We used the word *inquiry* in our sub-title because we have found it to be less intimidating for teachers than *research*. Our experience with graduate students and practicing teachers had shown us that research is often interpreted very narrowly as using the scientific method and positivistic statistical analysis. Our definition of inquiry then became *research that enhances professional practice through understanding interpretations of a broad understanding of curriculum; inquiry that seeks to know practice and the influences on practice and offers ways and ideas for the transformation of practice*. We held that curriculum inquiry involved using a variety of *methodological helps* (Egan, 1978) or scaffolds to investigate various aspects of the phenomena of Home Economics education. Thus we conceptualized the course as an exploration of various types and forms of inquiry and research techniques that would enable teachers new to Home Economics to locate, gather, analyze, critique and apply information in a wide range of contexts related to curriculum in Home Economics education including "mak[ing] problematic their own knowledge and practice as well as the knowledge and practice of others" (Cochran-Smith & Lytle, 1999b, p, 273).

We assumed that adults are constructors of knowledge; that teachers new to Home Economics should develop "*situated knowledge* [emphasis in original], meaning knowledge that is understood through specific situations rather than, or in addition to, knowledge that is understood abstractly" (Kennedy, 1999, p. 71), knowledge in practice and knowledge of practice (Cochran-Smith & Lytle, 1999b); and that they would benefit from being supported by having scaffolds or methodological helps and examples to guide them. We provided general information about each type of inquiry as well as examples of the inquiry in use. Teachers who enrolled in the course were then given specific inquiry tasks using the examples as models. Our hope was that the participants in the course would then be able to use the various inquiry processes in their own practice.

In designing the course our major objective was to provide opportunities for the participants to learn more about curriculum (taken in its broadest sense) in Home Economics education. We also wanted participants to be critical of what might be called *traditional* or *technical* or *moralistic* approaches to Home Economics that do not encourage critical or creative thinking (e.g., as outlined in Brown, 1980 and Montgomery, 2008). Rather than transmit current knowledge and theories in Home Economics we aimed to increase the teachers' ability to generate their own practical knowledge of the subject area and themselves, and in turn enhance their professional practice as current and future Home Economics teachers.

For our conceptual framework, we selected four general categories of inquiry: teacher action research; narrative inquiry including autobiography and self-study; historical inquiry; and curriculum document analysis (see Figure 2). These categories provided a diversity of ontological and epistemological commitments and offered a variety in depth and scope of the inquiry process (Tom, 1986; Peterat & Smith, 2001). They also provided examples of inquiry that could be used to gain *knowledge-in-practice*; and *knowledge-of-practice* (Cochran-Smith & Lytle 1993, 1999a, 1999b, 2009).

For each category we provided a description of what is deemed problematic, examples of how this inquiry method has been used and then specific activities for practicing the form of inquiry. The following table summarizes our conceptual framework (Figure 2), followed by more detailed discussion of each category.

#### Teacher action research

Teacher action research involves a commitment to examining what influences teachers' values, beliefs and teaching practices and what is going on in their classrooms, with an eye to improving the learning situation for the students in their care (e.g., Altrichter, Posch, & Somekh, 1993; Atweh, Kemmis, & Weeks, 1998; Holly, Arhar, & Kasten, 2005; Kincheloe, 2003; McNiff, 2003; Mills, 2003). Action research philosophy, grounded in the particularity and concreteness of everyday life, offered the possibility of capturing the emergent themes related to changing practice in Home Economics. It involves uncovering moments of wonder in practice, transforming them into research questions and making an action research plan consisting of cycles of planning, acting, and reflecting. Suggestions of action research projects in Home Economics education were included to be used to inspire the participants of the course (e.g., Cimbaro, 2008; Edstrom, Peterat, & Nicol, 2005; Lahti, 2012; Moock, 2001).

Inquiry Type and Form	Goal/Objective (what is deemed problematic)	Ontology (beliefs about the nature of being)	Epistemology (nature and sources of knowledge)	Pedagogical Activity and Context
Teacher Action Research— Interpretive/Reflective	<ul style="list-style-type: none"> <li>Understanding and improving pedagogical practices</li> <li>Questioning teaching/ learning processes</li> </ul>	Lived experience, natural and/or contextual	Situated knowledge	Make a teacher action research plan (Plan/Act/ Reflect) for classroom / school
Narrative Inquiry Including Autobiography and Self Study— Reflexive Inquiry	<ul style="list-style-type: none"> <li>Understanding the values and beliefs that underpin practice in context</li> <li>Questioning teaching/ learning processes</li> </ul>	Lived experience, contextual and socially constructed	Personal, practical knowledge	<ul style="list-style-type: none"> <li>a) Collaborative Analysis of Critical Incidents in school</li> <li>b) Exploring educational metaphors in personal and professional life</li> <li>c) Home economics education related life history / autobiography in personal and professional life</li> </ul>
Historical Inquiry— Examining Primary and Secondary Sources	<ul style="list-style-type: none"> <li>Understanding the social/political/cultural/economic and other factors that have influenced curriculum in home economics education</li> <li>Questioning societal factors that underpin practice and subject matter knowledge</li> </ul>	Educational phenomena are socially constructed	Historical/ Contextual knowledge	<ul style="list-style-type: none"> <li>a) Historical time line</li> <li>b) Analysis of a primary source</li> </ul>
Curriculum Document Analysis <ul style="list-style-type: none"> <li>Content Analysis</li> <li>Discourse Analysis</li> <li>Curriculum Orientation Analysis</li> </ul>	<ul style="list-style-type: none"> <li>Critical Understanding of the subject area</li> <li>Questioning the ideology behind teaching/ learning processes and subject matter knowledge</li> <li>Questioning the philosophical orientation embedded in teaching/ learning processes and subject matter knowledge</li> </ul>	Educational phenomena are socially constructed, ideological and subject to institutional power	Socially Constructed and Contested	<ul style="list-style-type: none"> <li>a) Examine the learning outcome statements in the current curriculum guide for evidence of critical and creative thinking</li> <li>b) Examine the rationale statement in the current curriculum guide</li> <li>c) Examine a curriculum resource to determine the prevailing curriculum orientation</li> </ul>

Figure 2 Conceptual framework for learning to use *inquiry* in a Home Economics teacher professional development course

### Narrative inquiry

Narrative research is a distinct form of qualitative research that gathers data through the collection of stories and reports of individual experiences (Clandinin & Connelly, 2000; Clandinin, Pushor, & Orr, 2007; Connelly & Clandinin, 2006; Huber, Caine, Huber, & Steeves, 2013). The focus is on practitioners' personal and practical knowledge and bringing their voices to the forefront. In narrative research, teacher/researchers describe their lives, collect and tell stories about the lives of others involved in the educational process, and write of teaching and education related experiences. The stories are then explored in an effort to understand the meaning of those experiences and how they impact who we are, what we value and what we do in education. When the stories are personal then the research belongs to a genre called self-study (Samaras, 2002). We selected three forms of narrative inquiry, collaborative analysis of critical incidents, examining metaphors, and exploring educational life histories.

### Critical incidents

Critical incidents are moments or events that allow you to stand back and examine your beliefs and identify taken-for-granted or hegemonic practices (Griffin, 2003; Hole & McEntee, 1999; Newman, 1991, n.d.; Tripp, 1993). They are also referred to as surprises (Schön, 1983, 1987) or epiphanies (Stringer, 1996). The analysis of critical incidents can be individual or collaborative. We chose the collaborative process developed by Tripp (1993) and outlined by Hole and McEntee (1999) where teachers work in groups sharing critical incidents of practice and then select one to analyze in depth. Examples from practice such as incidents that question the ethnocentrism of Home Economics curriculum content or the dominance of teacher as transmitter of knowledge or classroom management issues were given to participants to prompt them to think more deeply about their own practice.

### Examining metaphors

Metaphorical exploration provides useful insights and reflection points for Home Economists (e.g., *white sauce*, de Zwart, 2004, 2005; *spider plant*, McGregor 2011; *foggy mirror*, McGregor & Goldsmith, 2011). Metaphors offer a way of glimpsing from the corner of the eye to see things that elude us when we try to view them directly (Palmer, 1998). Exploring metaphors enables us to think about who we are as teachers and what we want to be as teachers (Bullough & Gitlin, 1995; Yero, 2002). Because the language of metaphor shapes our perceptions and influences our behaviors as Home Economics teachers, it is necessary to be conscious of the dominant metaphors that guide us. Metaphors can be changed when they limit our practice, are not educationally defensible, or are not in line with our values and beliefs. The examination of metaphors such as *teaching as telling* and *banking education* can be used to encourage participants to explore their own metaphors and implications for Home Economics education.

### Exploring educational life histories

Inquiries classified as autobiography or self-study acknowledge that much of teaching is rooted in the personal and has developed over the course of a lifetime (e.g., Bullough & Pinnegar, 2001; Cole & Knowles, 1995; Goodson, 2006; Krall, 1988). Autobiographical self-

study research produces narrative accounts of significant moments in our past that help us understand our values and provide insight into current decision-making (Ezer, 2009). Given the time constraints of the course (a usual term of thirteen weeks), we suggest limiting the life history to noteworthy life stories that relate to underlying beliefs about the intents and purposes of Home Economics education and how it should be taught.

### Historical inquiry

Historical research involves studying, understanding and interpreting past events (McCulloch & Richardson, 2000; McDowell, 2002). It provides another layer of context for understanding events by locating them in specific times and places. Vaines (1997) suggests three questions as part of reflective practice: What was? What is? What should be? Knowledge of the *what was*—past history of Home Economics—is important in order to understand present concerns and contradictions, “not to preserve the past but to adapt it so as to enrich and manipulate the present” (Lowenthal, 1985, p. 210) and to determine future directions (Burke, 2001). Historical inquiry involves using both primary and secondary sources of historical material.

### Examining secondary sources

Secondary accounts place historical research within a context, based on primary source data, on other secondary sources, or a combination of primary source data and secondary sources. Secondary sources seek to describe, explain, analyze, critique, report, summarize, interpret, or restructure that data. As such, they are second hand information and are much more common and accessible than primary source data.

For this inquiry we suggested that participants inquire into how Home Economics become part of the public school system through the examination of historical data. A collaborative timeline assignment was developed whereby students would determine the context in which certain developments in Home Economics education occurred. Students created their own lists of significant events based on various histories of Home Economics (e.g., Arcus & Leidenfrost, 2008; Peterat & de Zwart, 1995; Stage, 1997). After determining *what happened when...*, students identified how the prevailing socio/economic and political conditions of the period influenced what was happening in Home Economics at the time. By researching *what else happened when...*, students gained a greater understanding of contextual factors that influence what constitutes Home Economics at any particular time. The implications, antecedents, and consequences became part of the analysis and interpretation. Home economics education, like all school subjects, ebbs and flows and changes with prevailing socio- economic and political conditions and the current philosophy of education.

### Examining primary sources

Primary sources are first- hand information such as eye witness accounts or original records that have survived from the past. The latter include such things as diaries, letters, photographs, business papers, government and public documents, oral history interviews, and papers of organizations or societies. Primary sources are harder to acquire but are the preferred sources of historical researchers. They provide information that has not been analyzed, interpreted, commented upon, or repackaged, and reflects the individual viewpoint of the participant, observer or photographer as the case may be. For this historical inquiry we

suggested that students analyze archival data such as correspondence or interviews with Home Economics teachers, photographs of Home Economics classrooms, teaching resources such as videos, textbooks or cookbooks, professional newsletters and journals, or artifacts such as student projects.

### **Curriculum document analysis**

The last type of inquiry we included was Curriculum Document Analysis. Here we are referring to current curriculum materials being used in Home Economics classrooms in the jurisdiction of the teachers in the course. We chose three lenses for analysis; examining content, examining discourse and examining the underlying curriculum orientation.

### **Content analysis**

Content analysis is a research tool that can be used to examine curriculum resources and materials. It involves making inferences from the words, illustrations, and pictures used. Content analysis can be very sophisticated where the text is coded, or broken down into manageable categories on a variety of levels—word, word sense, phrase, sentence, or theme—and then analyzed at a deeper level depending on the conceptual framework of the research (e.g., postcolonial studies; feminist critical theory; anti-racist scholarship) (Stemler, 2001). At a less sophisticated level but still providing valuable insights is the most common notion of content analysis as simply doing a word-frequency count. The assumption made is that the words mentioned most often are the words that reflect the greatest concerns. The suggested assignment involved analyzing the learning outcome statements of a curriculum document to determine whether the underlying assumption was to promote higher order thinking using the new Bloom's Taxonomy (Pickard, 2007) as a rubric.

### **Critical discourse analysis**

The fundamental basis of critical discourse analysis is that our language and words are not neutral (McGregor (2003). The written content in curriculum documents indicates points of view and underlying values and beliefs about Home Economics, about what knowledge is of most worth, about what kind of society education is contributing to, and about the role of teachers and students. To make the analysis more manageable we suggested that this inquiry activity be limited to the rationale or philosophy statement of a current Home Economics curriculum guide. The intent is for participants to reveal the hidden assumptions and motivations behind a text and to think more deeply about the meanings.

### **Analysis of curriculum orientation**

Whether implicit or explicit, all educational programs, curriculum documents, textbooks and teaching resources, and teaching methodologies have a particular point of view regarding educational aims, conception of the learner, conception of the learning process and environment, and a conception of the teacher's role. This is frequently referred to as the curriculum orientation or perspective (Brown, 2006; Cheung & Ng, 2000; Eisner & Vallance, 1974; Miller & Seller, 1990; Posner, 2004). In an analysis of orientation the underlying beliefs are teased out and then categorized. For this analysis we used a framework developed by Peterat and Smith (2001) that outlined four orientations (factual and transmissive; factual

and transactional; interpretive and transactions; and critical and transformative) to determine the underlying values and beliefs that underpin a Home Economics curriculum resource of the students' choice (e.g., textbooks or learning resources).

## Conclusion

The goal of teacher professional development is usually three fold: to increase knowledge and skills; to change attitudes and beliefs; and to change instructional and pedagogical practices. Previous models have frequently involved disseminating research conducted by academics. Our intent was to re-imagine and explore the potential of practitioner research to transform Home Economics education. In this paper, we have shared the results of that exploration and shown how we conceptualized a curriculum inquiry course for teachers new to teaching Home Economics. Our work is based on the belief that in order to transform curriculum and pedagogy in Home Economics we need to make it an object of inquiry. The notion of *inquiry* was interpreted as the opportunity to remove the gap between theory and practice so that teachers were better able to theorize Home Economics curriculum and pedagogy by practicing theorizing through their own inquiries. But *inquiry* isn't a single entity. It exists in many types and forms and therefore it is important to bring conceptual clarity showing its multiple uses and meanings in order to create a conceptual framework, "a network, or 'a plane' of interlinked concepts that together provide a comprehensive understanding of a phenomenon or phenomena" (Jabareen, 2009, p. 50). The framework for inquiry presented here may be useful to others who are also interested in inquiry based professional learning, especially in institutions where inquiry has not been common practice. Like any conceptual framework it can be revisited, modified and reconceptualized according to new data, literature, and findings; and the possibility of deeper understanding, as opposed to concrete or causal approaches (Jabareen, 2009).

We hypothesized that if current and future teachers of Home Economics have a repertoire of various forms of inquiry or methodological helps, they would be more likely to continue to use these helps to transform their professional practice. We also hypothesized that trying out these models of inquiry or methodological helps would allow teachers to struggle with what should be Home Economics curriculum and pedagogy and to gain an understanding of the history, philosophy, curriculum and pedagogy in Home Economics. Whether this is the case or not is a question for future implementation research. But comments from the first group of students to complete the course make us optimistic.

I believe I am now a better student than I ever was and I believe as a result, I am also a better teacher. Much of this feeling of accomplishment, for me, comes from the content that I have been learning, perhaps especially in this course. I find the idea of questioning, researching, reflecting and observing compelling. I have rediscovered my passion for research.

I thought I had quite an enriched understanding of HE [Home Economics] but after taking this course, I am impressed by how much I have learned. I found the critical discourse analysis fascinating and will inquire into this area further. I thoroughly enjoyed looking at old photos and analyzing them. I also

like the idea that the content gave me a forum to speak to both my mother and son about HE topics and opened me to new perspectives.

I learned a lot about myself as a person and as a teacher through the assignments. I also enjoyed learning more about the history of HE and having thought provoking assignments.

## Biographies

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