



Out-of-field teaching and Home Economics: Incidence and impacts. Global insights from the field

Donna Pendergast¹, Jay Deagon², Anna Du Plessis¹, Sarah McManus¹ & Bill Blayney²

Abstract

Out-Of-Field-Teaching (OOFT) is increasingly prevalent as teacher shortages reduce the availability of qualified teachers in a range of subject areas. In Australia, teacher shortages in the STEM (science, technology, engineering, mathematics) field has long been acknowledged; however, there are workforce gaps in many subject areas, including home economics and related fields, such as food and nutrition, textiles and health. Teacher shortages are not confined to the Australian context. Global shortages are a challenge identified by UNESCO as a critical factor impacting the capacity to achieve Sustainable Development Goal 4: Quality Education by 2030 (UNESCO, 2016). The demand and supply of qualified home economics teachers in Australia is not a new problem. Pendergast and colleagues (2000) highlighted more than two decades ago some challenges and implications for the home economics discipline including: OOFTs lacking expert knowledge, pedagogical content and skills; workplace health and safety concerns; a lack of identity and misunderstanding of the discipline area such as assessment processes, practices and theories—all of which may negatively impact student learning, teacher effectiveness and student access to expert role models. As the home economics field faces challenges such as a lack of specialist programs to educate in-field, OOFTs are more likely to be a feature of home economics classrooms, hence the impetus for this current investigation. In order to explore the OOFT phenomenon in home economics at a global level, a two-stage process was followed: 1) a Systematic Quantitative Literature Review (SQLR) was conducted to identify the informing literature; and 2) an online survey was administered. 470 respondents from 14 countries completed all questions in the survey, of whom 440 were teachers in schools.

Introduction

In 2016 UNESCO released statistics revealing the need for almost 69 million teachers globally to achieve Sustainable Development Goal 4: Quality Education by 2030. These teachers comprise 24.4 million primary school teachers and 44.4 million secondary school teachers (UNESCO, 2016). Of these primary teachers, 3.4 million are additional teachers needed to expand access to school, while the remainder replaces teachers leaving the workforce. For secondary school, the replacement is 27.6 million, with an additional 16.7 million teachers needed to expand the workforce. In addition to the need to increase the teacher workforce globally, teaching quality is paramount, with a key indicator of the standard of teacher education, including specialisation. Estimates from UNESCO (2016) suggest that less than 80% of primary and secondary teachers in many parts of the world meet national standards, where the gap is often filled with those teaching out-of-field or without qualifications. According to

Ladd & Sorensen (2016), the lack of suitably qualified teachers threatens students' ability to learn and engage to the full extent desired. And this applies to home economics teachers.

The supply of home economics teachers globally is not well understood. A decade ago, Smith and de Zwart opened a window into the global supply and demand of home economics, noting that “in almost every jurisdiction there is currently a shortage of home economics teachers” (2010, p.3). Nothing has changed in the decade since their report was published. In Ireland, for example, where home economics is described as “one of the most popular subjects on the timetable taken by more than 23,000 Junior Certificate candidates and Leaving Certificates sit at 12,002” (Donnelly, 2019), schools have been forced to drop the subject because they could not replace home economics teachers due to shortages.

The extent to which suitably qualified home economics teacher shortages and substitute teachers from outside the field are utilised to balance the workforce is not well understood. Anecdotally there is evidence to suggest OOFT is occurring. In Australia, more than two decades ago, a study revealed a growing shortage of home economics qualified teachers to meet a continuous demand, with a major reason being a lack of appropriate tertiary teacher preparation courses (Pendergast et al., 2000), leading to non-qualified teachers delivering the specialist curriculum. Likewise, in New Zealand, a study revealed that 68% of schools use non-specialists to teach technology (home economics is delivered under the technology learning area). Furthermore, the impact of utilising out-of-field teachers means that learning programs sometimes had to be changed as the teachers did not have the curriculum understanding, with programs “watered down”, and with a flow-on of increased workload for specialist teachers to support non-specialist teachers, adding to already demanding loads (Reinsfield et al., 2021).

The out-of-field teaching phenomenon

The authors acknowledge that scholarly work in home economics and related subjects might mention *unqualified* teachers when discussing teachers who do not have qualifications/training and/or expertise in this field. In this paper, the authors will refer to unsuitably qualified/trained teachers to acknowledge that teachers assigned to OOFT positions are most often fully qualified teachers who get assigned to teach home economics because of contextual and school-specific challenges.

Subject areas taught in schools today will shape the next generation of entrepreneurs, leaders, families and every aspect of their futures. This paper focuses on home economics and how suitably or unsuitably qualified teachers influence students' interests, skill development, and learning experiences in home economics. The development of pedagogical content knowledge and skill in a specific subject area is more than textbook teaching or reading about instructional strategies and techniques. On the contrary, it is about an in-depth experience of applied knowledge and skills (Van Driel & Berry, 2012). Deagon (2021) stated that home economics is “a complexity-driven, authentic, and applied discipline that connects ‘real world’ activities and actions with people’s everyday lives, wherever they may live” (p. 139). Focusing on students' readiness/preparedness to apply knowledge in real-life situations, toward career paths, and ignite career passions turns attention to teachers as experts in this subject area. Our investigation aims to develop a deeper understanding of the implications and impacts of the OOFT phenomenon on home economics as a curriculum subject that infuses and offers a range of possibilities that focus on sustainable and optimal health and wellbeing of individuals, families and communities in their environments (IFHE, 2008). This report conceptualises OOFT in home economics as teachers assigned to teach in this specialised curriculum area without having the suitable and/or required qualifications or expertise.

The Australian Industry and Skill Committee (2022) shared employment needs in hospitality, where employment levels increased by 38% in 2021 to 795,200 and a projected further increase

to 846,400 by 2025. These needs are comparable to other fields that value added to the economy. For example, the fashion industry added 27.2 million Australian dollars to the economy in 2021 (Hinton, 2021). With hospitality deeply embedded in the industry, the tourism industry has the potential to generate 94 million Australian dollars per year. This economic impact emphasises the recent skill priority identification:

... occupations in national shortage with an estimated future solid demand related to the hospitality sector include Baker, Pastrycook, Chef, and Cook. The occupations of Barista, Hotel Service Manager are also listed as a strong future demand (Skills Priority List, 2021, p. 2).

Awareness of the potential quality training and skill development through home economics at school has implications for future generations' career paths, entrepreneurial skills, and implications for the Australian economy and the wellbeing of individuals, families and communities. However, the current decline of home economics as a subject of choice and the shortage of qualified home economics teachers made it necessary to understand perceptions fully and investigate the lived experiences of out-of-field and in-field teachers in home economics. Research showed that students shy away from specialist subjects taught by an out-of-field teacher (Du Plessis, 2017). Du Plessis' research further indicated that students quickly realise when a teacher does not have the needed expertise, skills or knowledge to offer quality teaching and learning.

Teachers' in-depth understanding of concepts, theories and ideologies embedded in home economics and sound specialised content knowledge and pedagogies specific to this field will stimulate student interest in the subject. Shulman (1986; 1987) identified content knowledge (CK), pedagogical knowledge (PK) and pedagogical content knowledge (PCK) as knowledge sets that inform teaching and learning. He further defined pedagogical content knowledge (PCK) as in-depth knowledge of the subject matter and the ability to teach that content successfully. Content knowledge (CK) means the theories, principles and concepts of a specific subject or year level, whereas pedagogical knowledge (PK) focuses on teaching principles.

This paper aims to investigate and develop an understanding of how the out-of-field phenomenon influences quality teaching in home economics. Quality teaching is intertwined with skill expertise and experience to develop a professional knowledge base for teaching specific content. Sound subject knowledge informs teachers' capacity to align pedagogical reasoning with the expectations and requirements of curricula and assessment processes. Shulman (1986) noted that teachers' knowledge of their subject matter influences successful teaching practices. Furthermore, the ideology and philosophy that underpins the home economics discipline, which is typically learnt during initial teacher training programs, inducts new-to-the-field teachers as to the reasons i teaching of their specialist subject area is unique and important (Deagon, 2021).

In order to explore the OOFT phenomenon in home economics at a global level, a two-stage process was followed: 1) a Systematic Quantitative Literature Review (SQLR) was conducted to identify any informing literature, and 2) an online survey was administered. This paper now turns to the SQLR.

Stage 1: Systematic Quantitative Literature Review

The Systematic Quantitative Literature Review (SQLR) method was employed to search, select, and analyse the literature pertaining to this study. Conducting an SQLR allows results to be quantifiable and replicable (Pickering & Byrne, 2014) and avoids selective and exclusionary practices. The utilisation of SQLRs in educational research is increasing in popularity, with a growing number of recent studies examining different aspects of education, for example, multi-

age classrooms (Ronksley-Pavia et al., 2019), sense-of-belonging (Pendergast et al., 2020), and teaching quality (Bradford et al., 2021).

An SQLR applying the Pickering and Byrne (2014) method concurrent with the PRISMA Statement was conducted between the 1st-16th March, 2022. The SQLR was designed to identify research conducted regarding OOFT in home economics to date, inclusive of exploring reported experiences, impacts and causes of OOFT in home economics. General demographic data was recorded to track the country of publication, research methodologies, and the terminology used to report OOFT in home economics. All extracted data was used to inform the generation of the survey and its deployment for this study.

From an initial extraction of 1229 papers, 25 were deemed to align with the SQLR aim. Two search strings were used independently to locate papers for this review; 1) (“home economics” AND “teachers” AND (qualified OR skilled OR trained)); and 2) (“home economics” AND (“out of field” OR “out-of-field”). This strategy captured multiple terms commonly applied to OOFT in home economics and made the search comprehensive. In the resultant papers analysed, the term “unqualified” was applied in 76% of papers to describe teachers who had completed initial teacher education and were teaching home economics out-of-field. By comparison, 8% of papers applied the more accepted modern term “out-of-field”. Consequently, we suggest that future research surrounding OOFT in home economics apply the term “out-of-field” to align with contemporary research.

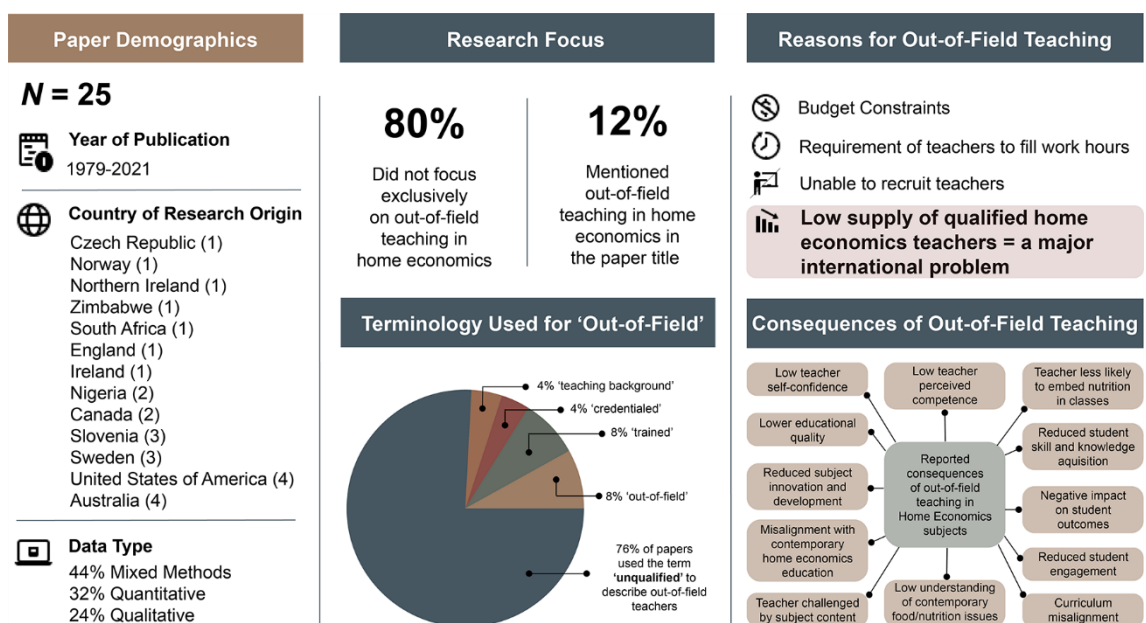
The most prominent finding from the SQLR was the paucity of research data surrounding OOFT in home economics. Of the 25 papers analysed, only five (20%) focused exclusively on this phenomenon, with three papers (12%) making it clear within the title that the research focus included “unqualified” home economics teachers. Most of the information extracted during the SQLR came from papers that did not exclusively focus on OOFT in home economics (80%). The SQLR provided two primary outcomes: 1) OOFT in home economics is mostly reported as a small section of a study rather than being the main focus, indicating the need for comprehensive research exclusively on this topic; and 2) comprehensive information regarding OOFT in home economics is very challenging to locate within contemporary research leaving the majority of the data collected during the SQLR without in-depth explanation, and at times being merely information fragments, indicating that this phenomenon is severely under-researched.

The SQLR revealed 17 papers (68%) where the main reason for OOFT in home economics was qualified home economics teacher shortages preventing school recruitment of qualified staff. Gray and Behan (2007) reported that some school Principals within Northern Ireland allocate teachers without home economics qualifications to teach this subject as a short-term fix in times of shortage. Principals in this study conceded that this might generate negative perceptions of the subject by staff and discourage student enrolment. Furthermore, a Canadian study by Kitchenham and Chasteauneuf (2010) stated that Principals allocate unqualified teachers to home economics to negotiate staff shortages, with 75% of human resources participants in their study being concerned by this strategy.

As indicated, OOFT is an international phenomenon. Reports of OOFT in home economics were recorded across 13 countries within the SQLR, indicating the need for an international investigation into this phenomenon. Concerns surrounding OOFT in home economics were reported as early as 1979 by Garman, who reported statistically significant outcomes ($P < 0.001$) indicating that beginning teachers who studied home economics units within their initial teaching education were scoring higher than teachers who had not done so when applying a consumer education literacy test to 4309 teachers of varied specialisations. Consequently, the author recommended that only specialist home economics teachers teach the subject matter. The SQLR further identified discussions surrounding out-of-field home economics teachers that

complement these earlier study findings, where discourses were framed primarily within a deficit model. The discussions indicated that out-of-field home economics teachers were less likely to embed nutrition within their classes (Murimi et al., 2008) and may experience lowered self-confidence and perceived competence in teaching home economics contexts (Kostanjevec et al., 2018; Murimi et al., 2008). Consequences of OOF of home economics include projected negative influences on educational quality and innovation, and student outcomes (Hakansson, 2015; Hakansson, 2016; Kostanjevec et al., 2011; Kostanjevec et al., 2018; Obeta, 2016; Ogbonyomi, 2021; Sadegholvad et al., 2017; Shadreck, 2012), show misalignment with contemporary home economics education, contemporary food and nutrition issues, and the intended curriculum (Hakansson, 2015; Hakansson, 2016; Sadegholvad et al., 2017), experience challenges in enacting the home economics curriculum (Hobbs et al., 2018), and may have negative impacts on student engagement in lessons alongside the ability of students to acquire new skills and knowledge in personal health promotion (Hrivnova, 2021). Figure 1 provides a visualisation of the key findings from the SQLR.

Figure 1: Key Findings from the SQLR on Out-of-Field Teaching in Home Economics



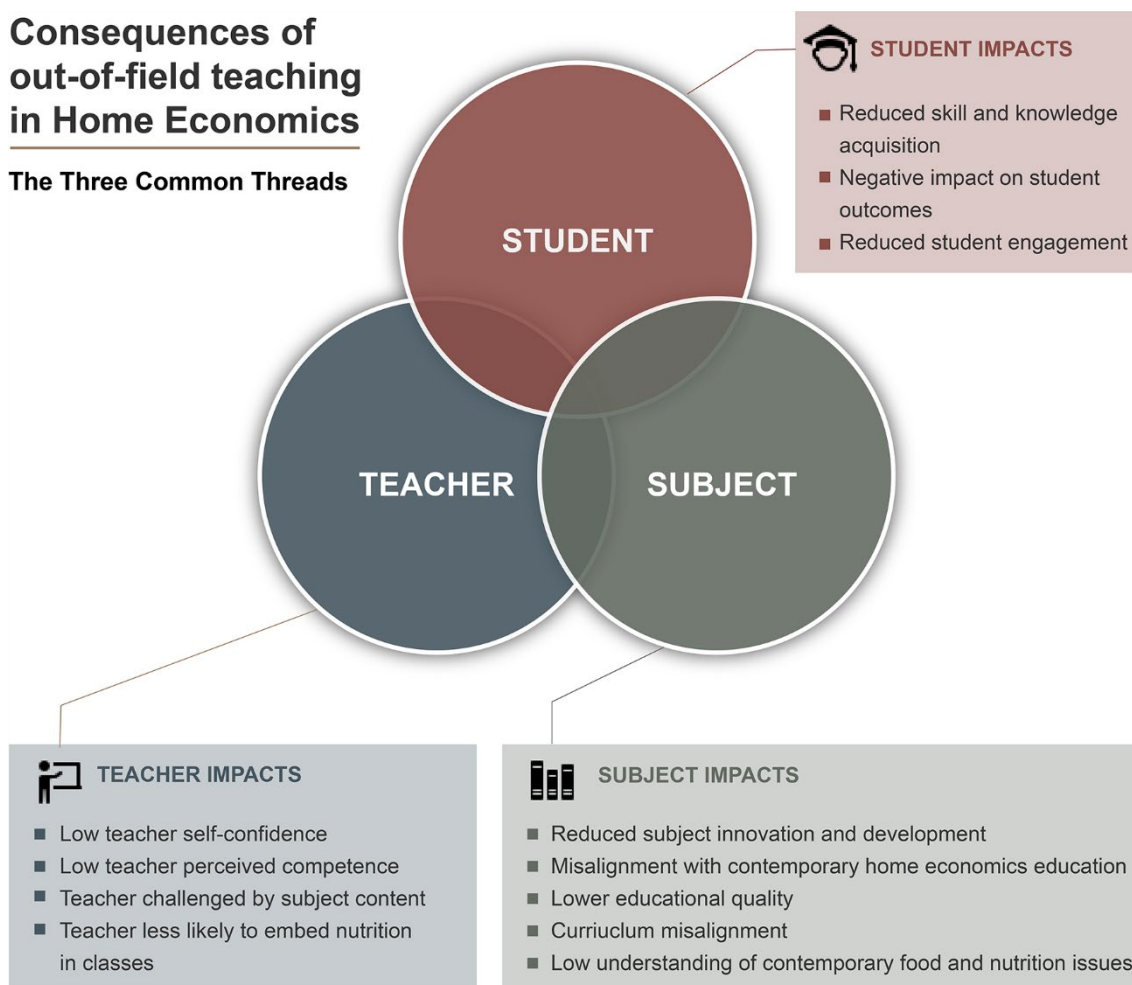
As represented in Figure 1, the overarching reason provided in the literature for out-of-field teaching in home economics was the low supply of qualified home economics teachers—as this was reported in a range of countries, it is a global problem. Related discourses are budget constraints, the requirement for teachers to fill their work hours, and the inability to recruit qualified teachers.

According to the literature, the consequences of out-of-field teaching in home economics are all negative in valency; hence they have a detrimental effect on the field. These consequences can be grouped according to common threads: teachers; students; and the subject. The impacts are categorised according to these areas in Figure 2.

Figure 2: Consequences of out-of-field teaching of home economics

Consequences of out-of-field teaching in Home Economics

The Three Common Threads



With the literature analysed through the SQLR and three key impacts and consequences outlined, this paper now turns to the survey to examine in more depth the current state of play of out-of-field teaching in the home economics profession.

Stage 2: Online survey with no boundaries

Following the SQLR and the insights gained regarding the reasons for, and the consequences of, OOF in home economics, this paper will now focus on exploring current teachers' perceptions about impacts and consequences of out-of-field home economics teaching. To achieve this, an online survey was selected as the medium to collect data and provide a voice to the experiences of home economics teachers.

Online surveys are a practical choice offering researchers a borderless environment, access to global professional networks and an opportunity to engage a community of practice in research using social media such as Facebook and Twitter (Bridge et al., 2021). Web-based surveys are easy to administer and are less costly and time-consuming than traditional methods such as mail or telephone (Hopmann, 2012). *Qualtrics Survey Software* was selected to construct and administer the online survey because it is easy to navigate and has several in-built features to assist with data analysis. Initial themes revealed from the SQLR shaped the survey items' development, such as teaching competence and confidence, and workplace health and safety concerns. The survey was pilot tested by 11 critical friends, and several rounds of edits resulted in item reductions and clarity.

The survey was administered globally to align with recommendations provided by the SQLR. An online snowballing design allowed the survey to be distributed widely. Participants were recruited through direct email invitation with a link to the online survey via various home economics related Facebook groups, Twitter and LinkedIn. Members of the research team used their professional networks to disseminate the survey within home economics specific Facebook groups, Home Economics Associations and groups in which they already participate as their community of practice. In addition, emails were sent to various Home Economics stakeholders such as the International Federation for Home Economics (IFHE), individual academics and industry partners throughout the world. The survey was open for a two-week period from 7 to 20 March 2022. Ethics was granted through Griffith University and complies with Human Research Ethics Policy (GU ref no: 2022/050).

Data were analysed to produce descriptive statistics, and free text was analysed using thematic content analysis to determine the frequency of occurrence where select examples of text representing themes generated and informed by the SQLR. The thematic content analysis does not assume explicit and replicable results; rather, thematic content analysis may be viewed as a single reading of the data and is subject to replication (Creswell, 2005).

Findings

Demographic characteristics

There were 469 respondents from 14 countries who completed all questions in the survey. An additional 61 surveys had incomplete data and hence were not included in the study. The majority of respondents (453) were registered/licensed teachers and 440 of these were currently teaching in schools. Eighty percent of these (351) were in permanent employment, with the remainder on fixed or short-term contracts or supply teaching. Respondents were from a range of countries, with the dominant groups from Australia (53%), United States of America (25%), United Kingdom and Northern Ireland (7%), Canada (5.5%), Ireland (3%), New Zealand (3%)—see Figure 3.

Over ninety-five percent (416) of the respondents identified as female, four percent (18) as male, and one respondent as non-binary. 31% were aged under 40, 60% were aged between 40 and 59, and the remainder over 60.

Thirty-two percent of respondents (134) have been teaching home economics for twenty-one years or more, with 26% (110) teaching for 11-20 years and the remainder (165) less than 10 years (42%). Interestingly, in this cohort, 59% indicated home economics teaching was their first career choice, with 41% indicating that was not the case.

In terms of qualifications, the majority (60%) of respondents had a Bachelor degree qualification as their highest level of qualification, while 29% held Masters and 8% secondary school was their highest. A small number held doctoral qualifications (3%). More than 150 of the respondents also held trade certificates and diplomas in fields related to home economics. Eighty-seven percent of respondents revealed they are qualified to teach home economics, while 13% (54) are not home economics qualified. Seventy-seven percent of respondents mostly teach home economics subjects for which they are qualified, however 6% of home economist teachers mostly teach subjects out of their field. Of the 13% of respondents who are not qualified home economics teachers, 9% teach mostly home economics while the remainder sometime teach home economics.

Figure 3: Demographic characteristics of OOFT survey respondents



Having now a snapshot of the demographics of this cohort, this paper turns to consider the views of respondents in terms of teaching out-of-field in home economics—what are the reasons, is it a concern, and what suggestions do respondents have to address the out-of-field phenomenon.

Teaching out-of-field in home economics

In this section, the findings are presented in three sections based on respondents' comments about OOFT in home economics. These are: reasons for teaching out-of-field; concerns about the consequences; and proposed solutions to out-of-field teaching. Each will be considered in turn.

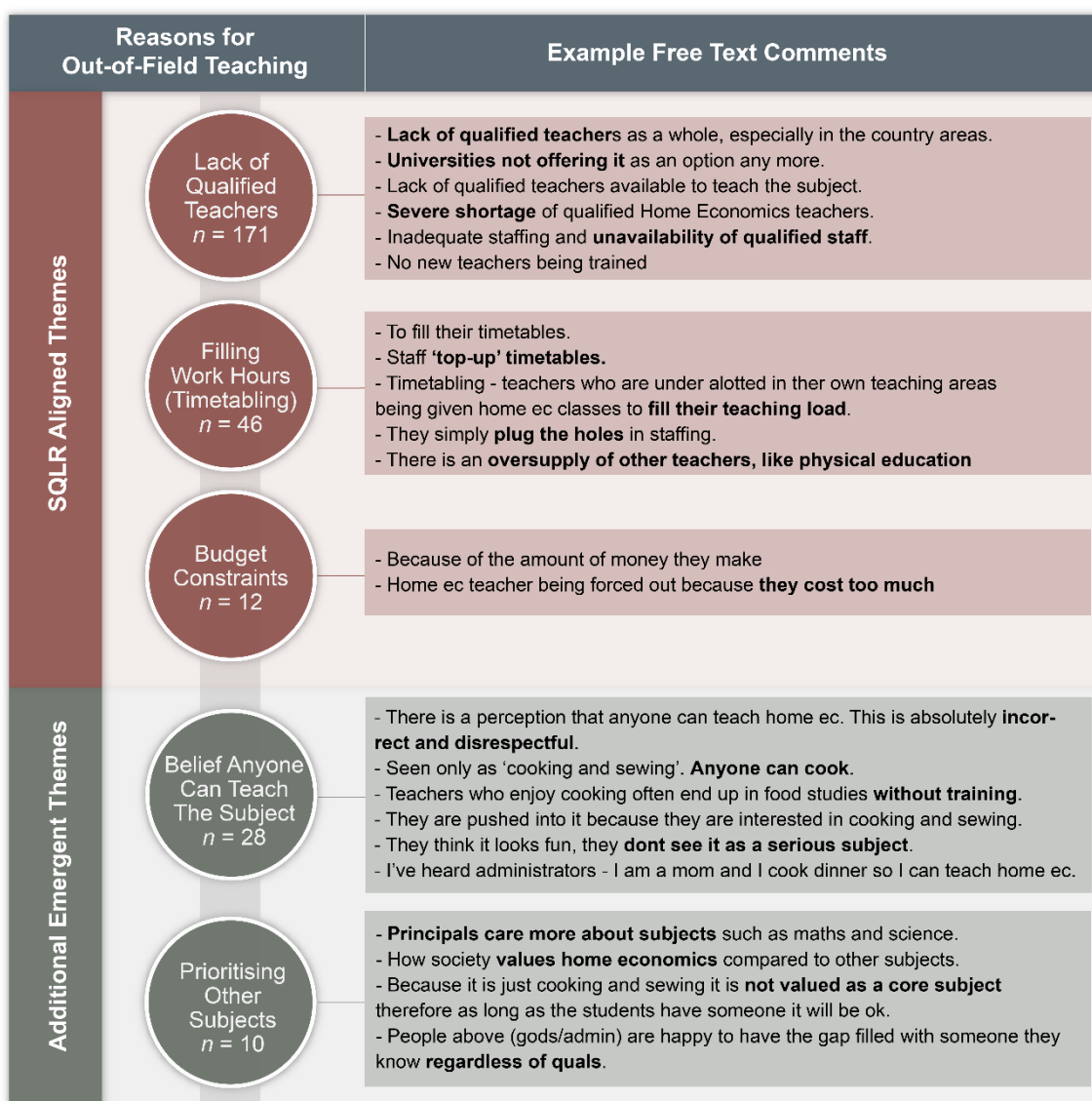
Respondents reported reasons for out-of-field teaching

The SQLR identified three key reasons for OOFT in home economics: budget constraints; the requirement for teachers to fill their work hours; and the inability to recruit qualified teachers. In this survey, respondents were invited to provide comments about the reasons for OOFT in home economics. There were 283 separate comments made. Figure 4 provides an analysis of

the free text, classifying responses first according to the three categories identified from the SQLR. In addition, at least two more themes emerged, and these are added to the reasons: the belief that anyone can teach it; and prioritising other subject areas. In accordance with thematic analysis methodology (Creswell, 2005) verbatim examples of comments are provided.

Figure 4 captures some of the reasons for OOF in home economics, as reported by the 440 home economics teacher respondents around the world. The SQLR identified three main reasons for this phenomenon occurring: budget constraints; the requirement for teachers to fill their work hours; and the inability to recruit qualified teachers; and these are all present in the data.

Figure 4: Free text responses: Reasons for OOF in home economics



The relative frequency of comments related to each of three areas points to the very dominant reason—the lack of suitably qualified home economics teachers, with 171 comments from separate individuals referring to this as a factor. Forty-six respondents pointed to the filling up of timetables as a reason for out-of-field teaching occurring, in their experience; and 12 pointed to budget issues that meant home economics teachers could not be appointed. Alternatively, budget issues could also refer to the cost of resources, equipment and

maintenance to upkeep home economics spaces and that schools and universities do not, are not able, or are unwilling to provide financial support to maintain, refurbish or upgrade home economics departments and employ qualified specialists. Finally, two further reasons for out-of-field teaching occurring in home economics were generated from the text: the belief that anyone can teach it; and the prioritising of other subject areas, with 28 and 10 comments respectively.

Respondents concerns about the consequences of out-of-field teaching

There are two groups in the survey responses—those not in schools (30), and those working as teachers in schools (440). Of those not in schools, most were either retired or working in higher education institutions. This group were asked if out-of-field teaching was a concern to them, and 76% indicated that it was. Sixteen provided comments from their experience of why out-of-field teachers are utilized to deliver home economics subjects—almost all used the word “lack” in their response: lack of qualified teachers; lack of specialists; lack in rural and remote locations.

Of those working in schools as teachers, 73% (252) of respondents indicated that teaching out-of-field was a concern to them, with the remainder (91) indicating it was not. The survey provided an opportunity for respondents to explain the nature of their concerns. In the free text written by the respondents, there were 267 separate comments, and more than 13,600 words were used. Free text in this section was often very extensive and multifaceted, for example:

Out of field teaching is a concern for any subject area due to not having the specialisation and experience in subjects. The problem is that there is a massive teacher shortage. At the moment we are employing a heart beat with no experience OR having teachers teach 2 subjects in the one room as we cannot get staff. We are being supplied staffing allocations from the Dept. of Ed but cannot get staff to fill those allocations. We are desperate for anyone. Unqualified teachers in the kitchen and sewing rooms are a hazard to students. Their behaviour management and organisational skills are a problem and students get frustrated about not completing work that they thought would be fun so drop the subject. Just because a teacher can cook at home doesn't mean they can teach it. The teacher shortage means that random teachers from other departments are asked to fill in. Our subject suffers more and more because of it. The Principal and HODs just don't get it!

This response is indicative of the free text provided and expressed frustration and confirmatory evidence across several of the key themes presented in the literature. Referring back to the SQLR, the review revealed 12 consequences of out-of-field teaching in home economics, and these can be further categorized into the broad areas of: the subject, teachers, and students (see Figure 2). In the above quote alone, all three impact areas (the subject, teacher and students) are mentioned. An analysis of the free text confirms that each of these 12 consequences are represented frequently in the comments, with many individuals noting several in their comments. Along with these three broad areas, there are two additional areas that emerged from the respondents' comments about their concerns about out-of-field teaching: safety concerns; and sustainability of the subject, that were not noted in the SQLR. Table 1 provides a summary of the frequency of comments for each of the identified themes.

Table 1 captures some of the consequences of the OOFT phenomenon within the home economics subject area. The information offered in Table 3 highlights perceptions as offered in the open-ended survey questions supported by respondents' verbatim quotes. The summary focuses on the nature of the phenomenon's impact on the, i) subject area, ii) teachers and iii) students. It is, however, informative to take note of respondents' specific references in their open-ended responses, for example, to the subject area 406 times, teachers' lived experiences 1071 times and to students 259 times, to voice concerns.

Table 1 Consequences of out-of-field teaching of home economics from the survey respondents

SUBJECT IMPACTS	
IMPACT NATURE	EXAMPLE FREE TEXT COMMENTS
<p>Low/lack of respect, understanding and valuing contemporary food/nutrition issues</p> <p><i>n</i> = 180</p>	<p>I worry that they do not have the core competencies to teach the area. There is so much false information about nutrition without science to understand it you could easily be teaching misinformation.</p> <p>The teachers that are not trained in home economics often teach the students unsafe practices. They also miss many techniques and terminology associated with cooking, textiles, food and nutrition.</p>
<p>Curriculum concerns and misalignment</p> <p><i>n</i> = 83</p>	<p>Home economics is more than the individual skills taught and assessed through curriculum. It aids in connection with and understanding students and being able to widen their perspective of the world. I am concerned that students taught by out of field teachers are skills focused and missing out on the underlying principles of home economics.</p> <p>Students not being trained correctly. Students not enjoying home economics due to out of field teachers not as passionate about the subject or have as much knowledge about the area. Teaching the students incorrect units and assessments that are not relevant to the curriculum.</p>
<p>Concerns about subject interest, innovation, development and its related restrictions</p> <p><i>n</i> = 64</p>	<p>In seeing others who do not have the background and in-depth training in the content, I feel that they do not teach FCS classes like FCS classes should be taught - they don't focus on individual and family wellness - and in the United States there is a strong push to teaching careers only, so I see teachers coming from "industry" and teaching the business aspect, and not the balance of home, family, and work - no mention of the Body of Knowledge or frameworks for FCS and those deeper themes and deeper thinking that we want to be teaching our students. I was taught that in many cases in FCS, it should be process over product - but in these classrooms I definitely see product over process.</p> <p>They have limited background knowledge to share with students. This causes miss information and a lack of creative teaching techniques.</p>
<p>Lower educational quality concerns</p> <p><i>n</i> = 25</p>	<p>Unqualified teachers trivialise and de-skill the subject area.</p> <p>From my experience students always get the best education in home economics from teachers who are trained in home ec.</p>
<p>Misalignment gaps with contemporary home economics education</p> <p><i>n</i> = 18</p>	<p>There are many teachers teaching family and consumer sciences that do not know what they are doing in the area(s) they are teaching. Because of this lack of knowledge or skill level they are unable to effectively cover the materials and students miss out.</p> <p>Concerns are learning is often not appropriately developmental. Some teachers lack knowledge and skill. Management of large groups of cooking and management of facilities not well handled. Lack of systems knowledge. Lack of safety understanding.</p>

Table 1 Consequences of out-of-field teaching of home economics from the survey respondents (cont.)

TEACHER IMPACTS	
IMPACT NATURE	EXAMPLE FREE TEXT COMMENTS
<p>Teachers challenged by subject content</p> <p><i>n</i> = 156</p>	<p>The teachers that are not trained in home economics often teach the students unsafe practices. They also miss many techniques and terminology associated with cooking, textiles, food and nutrition.</p> <p>The lack of Home Economics teachers in Scotland is a real concern. We see students once a week so skills building is extremely difficult. Student teachers coming through do not know the basics to deliver our subjects. Their practical skills are non-existent.</p>
<p>Low teacher perceived confidence and skills</p> <p><i>n</i> = 139</p>	<p>Individuals are not being encouraged to get professional development specific to content areas, are not being mentored by HE professionals, and frequently are not members of a professional organization related to HE. These individuals do not have the philosophical background to understand the holistic nature of HE. Many are teaching technical skills only without embedding the broader topics (ie sustainability, global perspectives, community service)</p> <p>Lack of knowledge, confidence and time management. Teachers don't understand the speed a practical class moves. Teaching bad habits by out-of-field teachers is hard to break later.</p> <p>Out of field teachers into home economics may lack the background experience of working in a noisy workshop or kitchen and therefore do not have the same "with-it-ness" as those with experience in those spaces.</p>
<p>Perceptions and concerns about nutrition classes</p> <p><i>n</i> = 30</p>	<p>There is so much false information about nutrition without science to understand it you could easily be teaching misinformation.</p> <p>Some teachers that are given food classes have no idea of what they are teaching and do it just because... They actually do more damage to the subject, as they discourage students from pursuing the subject ... teachers that 'like' to cook cakes, biscuits and high fat foods, it goes against everything we are trying to teach students.</p> <p>People with no nuanced knowledge of nutrition and health should not be teaching it. Many times they unknowingly nudge students towards eating disorders.</p>
<p>Low teacher self-view and confidence</p> <p><i>n</i> = 29</p>	<p>There are many teachers teaching family and consumer sciences that do not know what they are doing in the area(s) they are teaching. Because of this lack of knowledge or skill level they are unable to effectively cover the materials and students miss out.</p> <p>Concerns are learning is often not appropriately developmental. Some teachers lack knowledge and skill. Management of large groups of cooking and management of facilities not well handled. Lack of systems knowledge. Lack of safety understanding</p>

Table 1 Consequences of out-of-field teaching of home economics from the survey respondents (cont.)

STUDENT IMPACTS	
IMPACT NATURE	EXAMPLE FREE TEXT COMMENTS
<p>Concerns regarding students' correctly taught skill, knowledge and learning acquisition</p> <p><i>n</i> = 91</p>	<p>Wellbeing of students and teachers. Concerns about interest and passion in the field.</p> <p>Student learning suffered even though all of my resources were shared. Unfortunately, there's a lot of skill and art to teaching home economics courses. Without any training there are definitely deficiencies that cannot be made up by having an interest in cooking.</p>
<p>Reduced student passion, motivation engagement and involvement</p> <p><i>n</i> = 31</p>	<p>A lack of knowledge and expertise in the field can result in poor student engagement and retention into senior years. This impacts subject choices for students</p> <p>Students feel your passion and commitment and this will serve as a motivator in class.</p> <p>Being a passionate Home Economics educator, I see this value-adding in lessons as an extremely important part to keep the engagement of students.</p>
<p>Negative impact on student outcomes</p> <p><i>n</i> = 21</p>	<p>I feel like students will take the subject less seriously if they don't have qualified teachers who are passionate about the subject.</p> <p>Unqualified teachers in the kitchen and sewing rooms are a hazard to students.</p> <p>My concern is that not everyone is passionate about the subject. I find this leads to poor experiences and students less likely to take it up in their senior years.</p>

Table 1 Consequences of out-of-field teaching of home economics from the survey respondents (cont.)

EMERGING IMPACTS	
IMPACT NATURE	EXAMPLE FREE TEXT COMMENTS
<p>Safety concerns</p> <p>n = 58</p>	<p>Safety is a major concern...knowing how to food prep at home is completely different to managing a class of students while they prepare foods. Short cuts taken at home don't translate well to a practical lesson at school eg: inaccurate measurements lead to wasted ingredients, poorly explained techniques may cause injury, eg: knife handling skills and a lack of knowledge about hygiene practices and time management results in unfinished food preparation and unclean kitchens. This negatively impacts staff harmony. Same is true in a Textiles lesson. If students are not taught appropriate machining, ironing, etc skills then accidents can happen and expensive capital equipment can be broken leaving lessons under resourced.</p> <p>Due to the high-risk environment, I feel that it can create an unsafe environment. They do not have the skills of safety in practical classes. They are unsafe.</p> <p>It is a concern because many of them have a limited understanding of safety procedures and protocols that are in place to ensure health and safety in a high-risk environment. Many do not follow procedures for using knives and stoves safely. They don't often have an understanding of how to manage the kitchen with full-class cooking. Some don't follow food hygiene and safety standards. I have had out of field teachers leave chicken or fish out on the bench for long periods of time. I have also had knives go missing from supplies when an out of field teacher takes the class. Many cannot alter recipes to fit dietary requirements, some cannot cook or sew at all, and often are uncomfortable learning. They do not understand the need for equipment to be returned to an exact position in a set way for future use. Many do not supervise cleaning to the required standard.</p> <p>My concern comes from unintentional harm such as in a food related course someone without training can contribute to diet culture in the classroom without being aware of the issues surrounding such topic. Then of course there are safety aspects like food safety and injury that could occur in labs</p> <p>Out of field teachers do not have the skills or training required to effectively manage and teach the subject. Primarily this is a WH&S issue.</p>
<p>Sustainability of the subject</p> <p>n = 7</p>	<p>Overall, the teacher shortage in Colorado and the nation is a concern to me. I worry without qualified teachers the Family and Consumer Science programs will be eliminated. I think when people are trained to be teachers in their particular subject area, they are better qualified and better teachers.</p> <p>Where is the future of Home Economics if we allow teachers who do not share the passion to teach in this subject area? We need teachers who have the skill, the knowledge, and the ambition to teach in this field. Out of field teachers do not share the same drive that Home Economics teachers have. The quality and care of teaching is not valued by out-of-field teachers.</p> <p>I think it is important for the integrity & reputation of the subject that we have qualified teachers delivering the content</p> <p>I am always concerned that out-of-field teachers do not have adequate training to properly teach home economics. Without qualified teachers it could lead to the demise of the program.</p>

Noteworthy, not all survey respondents were concerned about the negative impacts of out-of-field teaching. A few, for example, suggested that it is not all negative:

I don't know enough home-ec teachers who are out-of-field to be overly concerned. I know this is typically looked down upon in this field, but if someone has a passion for one of the content areas, and they have a teaching background, they can really excel and spread their passion.

and

If an out of field teacher is keen to learn, shows passion for the area and receives appropriate training there isn't a problem and it can lead to really exciting learning opportunities and enormous job satisfaction.

Respondents' solutions to out-of-field teaching

The respondents who are not teachers in schools (30) were invited to suggest solutions. The responses mostly referred to the need for teacher preparation programs. Several pointed to the frustration of program closures, poor workforce planning, and the inability to offer a viable solution for this dilemma.

For those working as teachers in schools (440), there were 250 comments providing responses to the invitation to provide solutions. Nine respondents were unable to provide solutions, making comments such as: "I am not sure what can be done"; "I wish I knew"; "I don't know"; and "[T]his research is a good start! It is a very complex problem. I don't have any suggestions but I wish you luck."

A thematic analysis of the data led to the generation of 10 themes that can be grouped together into three overarching areas: policy and action; access to qualifications and professional learning; and, valuing and advocacy of home economics. Table 1 provides a summary of the 10 themes with a frequency of how many respondents included a comment related to this theme, and some examples of text.

Table 2 presents the proposed solutions OOFT in home economics, as reported by the 440 home economics teacher respondents around the world. Ten themes that can be grouped together into three overarching areas: policy and action; access to qualifications and professional learning; and, valuing and advocacy of home economics, were generated from the comments. Taken together, there were 126 comments related to access to the theme—qualifications and professional learning. Thirty-five solutions were categorized into the theme of valuing and advocacy of home economics. Finally, 18 comments were made regarding the need for policy and action related to OOFT.

Table 2 Solutions to out-of-field teaching of home economics from the survey respondents

POLICY AND ACTION TO AVOID OUT-OF-FIELD TEACHING	
SOLUTION	EXAMPLE FREE TEXT COMMENTS
Develop and implement policies to avoid out-of-field teaching (n = 11)	Simply not allow it to happen, have all teachers in the fields of expertise. Mandate University level training before teaching in this area. The government needs to develop a policy to ensure qualified teachers are teaching what they were trained to teach across all subjects. Acknowledge the challenges. Policy development for the effective management of the implications. Tighten up regulations for who can teach.
Incentivise (n = 7)	Incentives to teachers to specialise and locate to where jobs are. Better government funding to qualified staff Better pay for specialist teachers. I think one solution would be to see the value of teachers and pay them more. Perhaps then hopefully we will attract people into the profession and we wouldn't have to worry so much about teachers having to teach out-of-field. Offer permanent positions

Table 2 Solutions to out-of-field teaching of home economics from the survey respondents (cont.)

ACCESS TO QUALIFICATIONS AND PROFESSIONAL LEARNING	
SOLUTION	EXAMPLE FREE TEXT COMMENTS
Teacher education programs (n = 60)	<p>More universities to offer as a subject to teach in home economics.</p> <p>Increase intake plus, other Universities training teachers in this area.</p> <p>Train more food tech/hospitality teachers, many are retiring- as I am, there is no one to replace us. Heaps of ads in NSW trying to get positions filled.</p> <p>A comprehensive degree program would be helpful. We used to have a bachelor of home economics offered at UBC and they changed the program making it harder for younger graduates to know which courses to take to get qualifications needed to teach home economics.</p> <p>Universities need to start training more teachers in Home Ec, just not enough offering the course! The Department of Education needs to offer retraining opportunities for interested staff.</p> <p>Increase supply. Make add on course - (2 years full time) available to teachers in other subject areas/suitable candidates (e.g chef/people with an honours degree in food/textiles etc). New course should be in any college/university in Ireland other than St. Angela's Sligo or any Dublin college/university. E.g. Dundalk I.T.</p> <p>Bring back the teaching degree to be internally studied to attract young people to study the teaching area. Give it the value it deserves like all the other subjects which are an important part of life literacy, numeracy, health...</p>
Professional development and bridging courses (n = 44)	<p>Training courses for out of field teachers to upskill</p> <p>More training for those who think they are the experts!</p> <p>They should do a short course offered by home economics</p> <p>Upskilling. This is an easier way than having teachers retrain and/or go back to uni. We already have a teacher shortage and we need to find ways to get quality teachers in the classrooms. We have quality teachers that are in schools and are ready for a change and would not go back to further study but would attend upskilling sessions to give them qualifications or competencies to teach in the Home Economics field.</p> <p>Support HEC teachers in PD to continue to develop high quality curriculum and grow the subject area and create professional support in training.</p> <p>Home-ec teachers who teach out-of-field need robust professional development in the content area they are not an expert at.</p> <p>More accessible training for working out of field teachers. Universities/ training organisations need to provide short courses with official acknowledgment.</p>
Mentoring (n = 18)	<p>I mentored several teachers who were not Home Ec trained. These teachers need a mentor.</p> <p>Job shadowing will allow for experiences.</p> <p>Mentoring and training days.</p> <p>provide mentor teachers and more time for training.</p> <p>Anyone who takes on out-of-field teaching in HEc would benefit from having a dedicated mentor teacher who is knowledgeable and approachable to buddy with.</p>
Funding qualifications (n = 8)	<p>Cheaper post graduate training.</p>
Enabling allied fields to transition (n = 6)	<p>One solution may be to use non-teaching specialists, while home eco teachers facilitate. Eg: chef comes in, presents a prac, then the home eco teacher continues with theory. Might help the prac- being presented at a high level, and the theory - any teacher could present</p> <p>Encouraging those who have field experience (i.e. Chef, Interior Designer, seamstress/fashion designer, early child education, etc) to consider teaching, even part-time (one or two classes)</p> <p>Chefs with excellent training in their field (I have seen chefs wanting to move into teaching that do not have confidence of skill) wanting a sea change. I have seen multiple staff in Adelaide do this and it appears to be working.</p>

Table 2 Solutions to out-of-field teaching of home economics from the survey respondents (cont.)

VALUING AND ADVOCACY OF HOME ECONOMICS	
SOLUTION	EXAMPLE FREE TEXT COMMENTS
Improving the way home economics is valued (n = 15)	<p>More societal acceptance and realization that the skills and areas of study in field of Home Ec are applicable to everyone.</p> <p>Valuing all subjects equally.</p> <p>Schools need to value these skills these teachers have. Use them to better their students.</p> <p>More public knowledge about the benefits of HE would help increase our support and better likelihood that schools support our programs.</p> <p>It's all about whether its value adds to the curriculum. If it's not valued anyone will teach it. Solutions - lobby people to bring back the content based on a need to improve the health of society. Schools implement curriculum based on government decisions. If the government can improve the health of its people through life education and be proactive and preventative with life education then maybe they will value tertiary courses and those hired in the profession.</p> <p>Increase appeal to pupils and increase parent/pupil/other teacher understanding of what is involved in the subject (people think it's like cooking was when they were at school, or that we predominantly cook, but it's so much more).</p>
Promote the importance of home economics (n = 11)	<p>Lobby for home economics to return to schools.</p> <p>Better marketing of the GOOD parts of our job and field.</p> <p>Try to promote home economics to society as being as valuable as we know it is.</p> <p>My solution is better marketing for our areas, training more teachers, more benefits for home economic teachers who have full-on days on their feet slaving away barely having time to sit down or do admin during a school day. make home economic subjects compulsory, even if it is up to and including Year 10 level so students can actually learn some important life skills.</p> <p>Home economics needs more marketing, understanding and recruitment. The general public needs a better understanding of their role in public health and education. With that we could then recruit people who are looking for a meaningful profession.</p> <p>Advocates in the media that nutrition and sustainable choices are everyone's business, and HEC explicitly addresses these issues in society.</p> <p>A rebrand/promotion of the subject through schools so people understand what the subject is and its importance in society.</p> <p>Start with the highest policy makers and help them commit to strengthening the profession and curriculum for every student on all levels. A worldwide campaign that unites.</p>
Rename the subject (n = 7)	<p>I do think the name Home Ec needs to be re-branded. Parents think home economics is making aprons and cooking scones.... We definitely have an image problem.</p> <p>Not calling the subject home economics would help, I am genuinely embarrassed to tell people the name of my profession. We call it Food and Textile Technologies at school.</p> <p>Lift the profile in society and within schools, make it more important other than cooking and sewing, get CAFS back into the area, make the subject names more 21st century.</p>
Address gendered nature of home economics (n = 2)	<p>Encourage more male representation in the field of home economics teaching.</p> <p>A better male uptake.</p>

Discussion and recommendations

This study set out to explore the OOFT phenomenon in home economics at a global level. For the first time, a systematic quantitative literature review revealed what has been published to date, and this was used as the basis for an analysis of a global survey of teachers working in the home economics field. The analysis has led to the reasons and consequences of out-of-field teaching in home economics being expanded beyond what the literature had previously reported. The voices of the teachers are the feature of this paper.

The SQLR identified three key reasons for out-of-field teaching: budget constraints, the requirement for teachers to fill their work hours; and the inability to recruit qualified teachers. These themes were confirmed in the survey responses and two additional categories were generated: the belief that anyone can teach home economics; and prioritising other subject areas. Teacher beliefs about the curriculum subject has implications for teacher identity and targeting initial teacher education and professional development needs, especially when trade professionals are initiated into the home economics space (Blayney & Deagon, 2022). This study points to out-of-field teachers of home economics requiring support, including mentoring, pursuing suitable qualifications, and induction into the field. School Principals are partially responsible for ensuring this occurs (Gray & Behan, 2007, Kitchenham & Chasteauneuf, 2010), as teachers wishing to upskill into home economics require resources such as mentoring and timetable space to engage in further study.

The SQLR revealed 12 consequences of OOFT in home economics. An analysis of the free text confirmed that each of these 12 consequences are represented frequently in the comments. Furthermore, this study revealed two additional areas that emerged from the respondents' comments about their concerns about out-of-field teaching: safety concerns; and sustainability of the subject. The data suggests that suitably qualified teachers of home economics have specialised pedagogical content knowledge, classroom management and safety practices that do not put the subject and safety of students and staff at risk.

Finally, the survey respondents proposed a range of strategies to address OOFT, and a thematic analysis revealed 10 themes that were grouped together into three overarching areas: policy and action; access to qualifications and professional learning; and, valuing and advocacy of home economics. These strategies are wide reaching and comprehensive and serve as a key lever for future action. Among them, the availability of quality professional learning has the potential to benefit subject area uptake by students as well as lift the profile of home economics amongst faculty members and school communities. In addition, universities are encouraged to make the home economics academic discipline visible to potential students as a viable career pathway and an arena for research into best practices, policy renewal and professional development. It is recommended that the data from this study be further analysed according to the country in which the respondents are located, in order to gain a better understanding of the contextual factors of specific relevance to that setting. This summary is presented in Figure 5.

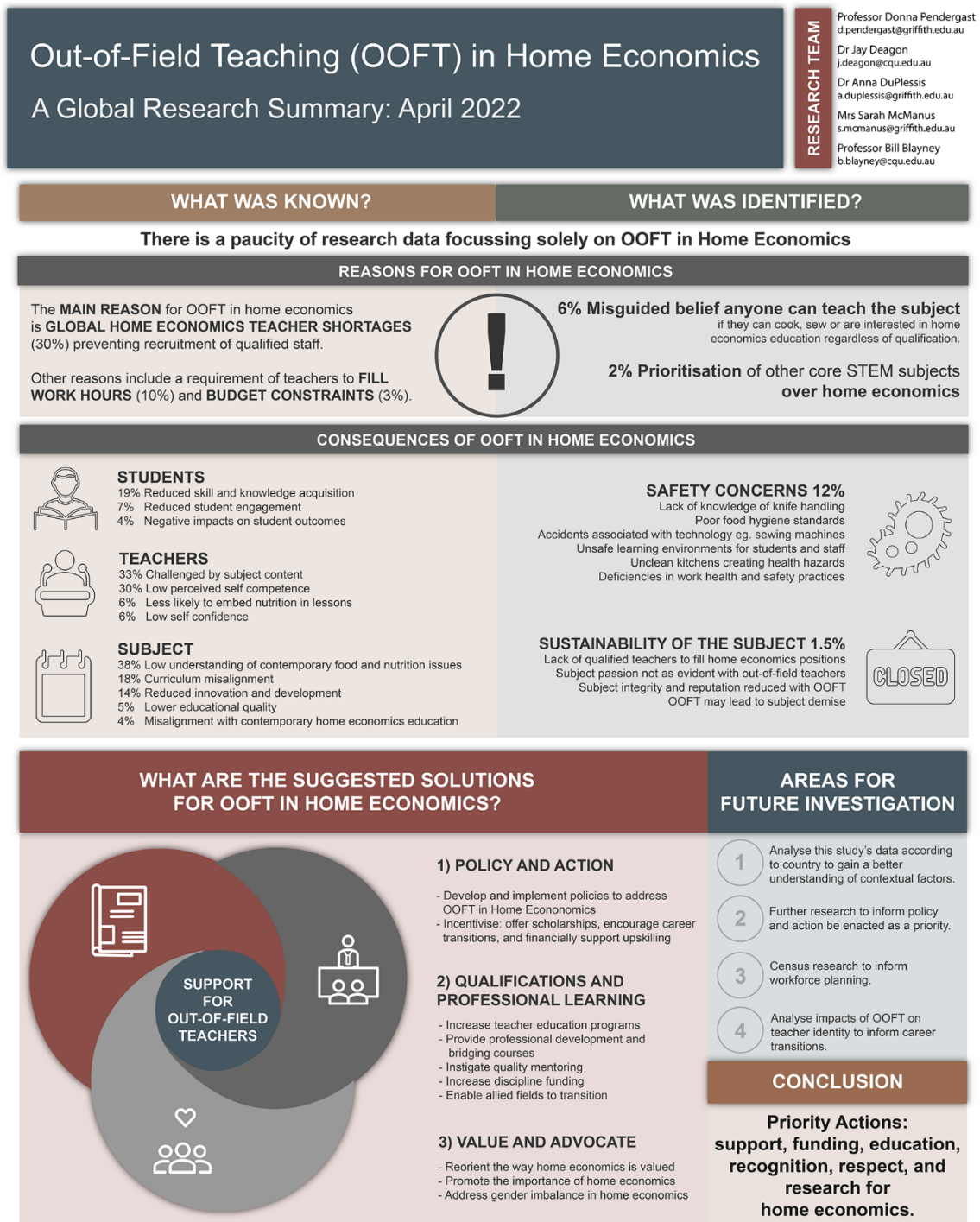
Conclusion

This study has provided some confirmatory evidence that OOFT of home economics and related subjects is a concerning global phenomenon for the field, with, in the main, negative consequences. Despite the many limitations of this study, providing an initial space for home economics teachers to voice their concerns about OOFT has revealed a list of consequences that effect students, teachers, and the subject itself. Responding to teachers' suggestions for action provides a starting point to address this issue.

Out-of-field teaching of home economics, or any curriculum subject that utilises specialist teachers, requires multifaceted approaches to solutions. In a world facing many challenges such as climate change, political unrest, global pandemic recovery, economics crisis, resource depletion and uncertain futures, home economics is a frontline stalwart for providing foundational knowledge for real-life situations, exposure to multiple career paths, and igniting career passions in students. This is dependent upon teachers with specialist home economics pedagogical content knowledge being available. Teacher shortages and OOFT limit student access to passionate and knowledgeable role models. Home economics teachers deserve respect and recognition for the significant contributions they make to achieving optimal and sustainable health and wellbeing for individuals, families and communities. Recognition and respect can be achieved through reorientation of the profession to a position of value in schools

and society. We recommend further research to inform policy and action be enacted as a priority.

Figure 5 Project summary



References

- Australian Government. Department of Resources Energy and Tourism. (2010). *2020 Tourism Industry Potential*.
<https://www.tourism.australia.com/content/dam/assets/document/1/6/x/6/3/2002539.pdf>
- Blayney, W., & Deagon, J.R. (2022) Tradee-to-teacher pathways: a potential solution to teacher shortages. *Journal of the HEIA*, 27(1), 17-26.
- Bradford, K., Pendergast, D. & Grootenboer, P. (2021). What is meant by 'teacher quality' in research and policy: A systematic, quantitative literature review. *Education Thinking*, 1(1), 57-76.
- Creswell, J. W. (2005). *Educational Research: planning, conducting, and evaluating quantitative and qualitative research* (2nd ed.). New Jersey: Pearson Education, Inc.
- Deagon, J. R. (2021). I Do, We Do, You Do Home Economics: Explicit Instruction Connecting Content with Ideology. *Center for Educational Policy Studies Journal*, 11(4), 135-150.
<https://doi.org/10.26529/cepsj.1188>
- Donnelly, K. (2019). School has to drop home economics as shortages bite in teaching crisis. *Independent IE*. 28 August, 2019
- Du Plessis, A. (2017). Out-of-field teaching: What leaders should know. Dordrecht, Netherlands: Sense.
- Garman, E. T. (1979). The Cognitive Consumer Education Knowledge of Prospective Teachers: A National Assessment. *The Journal of Consumer Affairs*, 13(1), 54-63.
<https://www.jstor.org/stable/23858588>
- Gray, C., & Behan, S. (2007). Current and predicted staffing patterns in post-primary schools: The perception and experience of school principals. *Oxford Review of Education*, 31(3), 443-458.
<https://doi.org/10.1080/03054980500222189>
- Hakansson, A. (2015). Indoctrination or education? Intention of unqualified teachers to transfer consumption norms in home economics teaching. *International Journal of Consumer Studies*, 39(6), 682-691.
<https://doi.org/10.1111/ijcs.12180>
- Hakansson, A. (2016). Intentions of formally qualified and unqualified teachers to transfer norms and values in home economics teaching. *International Journal of Consumer Studies*, 40(3), 268-275.
<https://doi.org/10.1111/ijcs.12251>
- Hilton, T. (Nov 10, 2021). *Economic contribution of fashion industry in Australia, 2021 by economic activity*.
<https://www.statista.com/statistics/1263626/australia-economic-contribution-of-fashion-industry-by-activity/#statisticContainer>
- Hobbs, L., Campbell, C., Quinn, F., Vale, C., Lyons, T., Speldewinder, C., & Tytler, R. (2018, November). *Teachers new to teaching across the STEM subjects: How to create cultures of support, innovation and collaboration* [Paper Presentation]. Deakin STEM Education Conference 2016/2018, Geelong, Australia.
<https://www.deakin.edu.au/stem-education-conference-2018/program>
- Hrivnova, M. (2021). Evaluation of the implemented and adopted curriculum in health education in the Czech Republic and emphasis on the drinking regimen. *CEPS Journal*, 11(4), 81-108.
<https://doi.org/10.26529/cepsj.1192>
- International Federation for Home Economics. (2008). *Home Economics in the 21st century: position statement*. <http://www.ifhe.org/>
- Kitchenham, A., & Chasteauneuf, C. (2010). Teacher supply and demand: Issues in Northern Canada. *Canadian Journal of Education*, 33(4), 869-896.
<https://www.jstor.org/stable/canajeducrevuca.n.33.4.869>
- Kostanjevec, S., Jerman, J., & Koch, V. (2011). The effects of nutrition education on 6th graders knowledge of nutrition in nine-year primary schools in Slovenia. *Eurasia Journal of Mathematics, Science and Technology Education*, 7(4), 243-252.
<https://doi.org/10.12973/ejmste/75208>
- Kostanjevec, S., Kozina, F. L., & Erjavsek, M. (2018). The relationship between teachers' education and their self-perceived competence for teaching home economics. *Problems in Education in the 21st Century*, 76(2), 175-188.
<http://oaji.net/articles/2017/457-1524597478.pdf>
- Ladd, H., & Sorensen, L. (2016). Returns to teacher experience: Student achievement and motivation in middle school. *Education Finance and Policy*, 12(2), 241-279.
https://doi.org/10.1162/EDFP_a_00194
- Murimi, M. W., Sample, A., & Hunt, A. (2008). Nutrition instruction in seventh grade: A comparison of teachers with and without FCS background. *Journal of Family and Consumer Sciences*, 100(3), 22-27.
<https://www.proquest.com/openview/70f3034543fc8af2a0ce49d36957c3aa/1?pq-origsite=gscholar&cbl=41036>
- Obeta, A. O. (2016). Challenges facing teaching and learning of clothing and textiles in Abia State secondary schools, Nigeria. *International Journal of Home Economics*, 9(2), 107-117.
<https://doi.org/10.1080/09737189.2011.11885336>
- Ogbonyomi, O. B. (2021). Achieving Sustainable Development Goals on Vision 2030 through entrepreneurship in food and nutrition education. *Nigeria Journal of Home Economics*, 9(5), 226-231.
<https://www.hepan.org.ng/journal/index.php/njhe/article/view/53>

- Pendergast, D., Reynolds, J. & Crane, J. (2000). Home economics teacher supply and demand to 2003 - Projections, implications and issues. *Journal of the Home Economics Institute of Australia*, 7(3), 1-41.
- Pendergast, D., Ronksley-Pavia, M., & Dewhurst, Y. (2020). A systematic quantitative literature review of pre-service teachers' sense of belonging during school-based experience. *International Journal of Home Economics*, 13(2), 59-79.
- Pickering, C., & Byrne, J. (2014). The benefits of publishing systematic quantitative literature reviews for PhD candidates and other early-career researchers. *Higher education research and development*, 33(3), 534-548. doi:10.1080/07294360.2013.841651
- Reinsfield, E., Lee, K. Exploring the technology teacher shortage in New Zealand: the implications for quality teaching and learning. *Int J Technol Des Educ* (2021). <https://doi.org/10.1007/s10798-021-09668-4>
- Ronksley-Pavia, M., Barton, G. & Pendergast, D. (2019). Multiage Education: An Exploration of Advantages and Disadvantages through a Systematic Review of the Literature, *Australian Journal of Teacher Education*, 44 (5), 24-41.
- Sadegholvad, A., Yeatman, H., Parrish, A. M., & Worsley, A. (2017). Experts' views regarding Australian school-leavers knowledge of nutrition and food systems. *Australian and New Zealand Journal of Public Health*, 41(5), 502-507. 10.1111/1753-6405.12703
- Shadreck, M. (2012). Challenges of implementing the food and nutrition curriculum in secondary schools in Chivi districts, Zimbabwe. *Journal of Emerging Trends in Educational Research and Policy Studies*, 3(5), 779-784. <https://www.jetaraps.scholarlinkresearch.org>
- Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4-14.
- Smith, G. & de Zwart, M. (2010). Home Economics: A contextual study of the subject and Home Economics teacher education. *Teacher Inquirer*, May 2010.
- Skills Priority List. (June, 30, 2021). *2021 Skills Priority List*. <https://www.nationalskillscommission.gov.au/2021-skills-priority-list>
- The Australian Industry and Skill Committee (January 21, 2022). *Industries, Tourism, Travel and Hospitality Overview*. <https://nationalindustryinsights.aisc.net.au/industries/tourism-travel-and-hospitality/hospitality>
- UNESCO (2016). UNESCO highlights shortage of teachers. <http://sdg.iisd.org/news/unesco-highlights-shortage-of-teachers/>
- Van Driel, J., & Berry, A. (2012). Teacher professional development focusing on pedagogical content knowledge. *International Journal of Educational Research*, 41(1) (2012), pp. 26-28, 10.3102/0013189X11431010