"Images and Objects"

A Tool for Teaching Education for Sustainable Development and Responsible Living in Home Economics

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Abstract The "Education for Sustainable Development (ESD) Images and Objects Toolkit" is a pedagogical resource, developed by the Consumer Citizenship Network (CCN) and used worldwide. This chapter presents an analysis of the original toolkit as a valuable basis for developing a new edition, specifically adjusted to the requirements of ESD teaching in the post-primary Home Economics curriculum in Ireland. The new adapted toolkit should provide support for initial teacher education and post-primary educators by helping practitioners to integrate the principles, values and practices of sustainable development in the Irish Home Economics curriculum. The adaption and development of the toolkit is informed by an action research project which documents Bachelor of Education (Home Economics) student teachers' understanding of sustainable and responsible living, their evaluation of the "ESD Images and Objects" toolkit and the challenges associated with integrating the active methodologies presented in teaching Home Economics. The data analysis leads to recommendations from both student teachers and project partners to support the development of a Home Economics specific "Images and Objects" toolkit.

Keywords Education for sustainable development (ESD) • Teacher education • Curriculum development • Home economics

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1 Introduction

The Home Economics Department at St Angela's College, Sligo; the sole provider of Home Economics teacher education in Ireland and the Curriculum Development Unit of the City of Dublin Vocational Education Committee (CDVEC CDU), a centre for research, curriculum development and teacher education, are Irish members of the Partnership for Education and Research about Responsible Living (PERL) Network. The two institutions (henceforth referred to as the project partners) collaborated on a small-scale action research project aimed at embedding education for sustainable development (ESD) and responsible living in the Irish post-primary Home Economics curriculum. This project was part of a wider initiative to reorient teacher education and supporting curriculum resources to address ESD.

The project partners recognised that teachers are significant cultural multipliers who are influential in forming attitudes and values. Therefore, Home Economics student teachers were engaged in a critical analysis of their personal understanding of ESD concepts and themes. Student teachers took part in a series of workshops involving activities from the "ESD Images and Objects" toolkit developed by the Consumer Citizenship Network (CCN) (Cusack and O' Donoghue 2008; see Fig. 1). The toolkit supports the teaching of ESD by presenting activities where images can be utilised to develop an understanding of related ESD themes. Participation in these workshops stimulated discussion about the suitability of the active methodologies, the range of activities promoted in the toolkit and the potential of these to support the integration of ESD within the post-primary Home Economics curriculum.

Although the primary aim of the action research element of the project was that the emerging student teacher data would subsequently inform the development of an adapted "ESD Images and Objects" toolkit as a resource to support the teaching of ESD and responsible living in post-primary Home Economics, an important correlated aim was the integration of a curriculum development experience into an initial teacher education setting.

This chapter commences with a review of significant ESD policy initiatives and literature, followed by contextual background information on the development of the CCN toolkit and an overview of Home Economics as a field of study, with particular emphasis on the Irish post-primary Home Economics curriculum. Subsequently, the research methodologies employed are outlined; the data collected is discussed, and findings which have direct implications for the Home Economics specific toolkit are highlighted.



Fig. 1 Cover page and table of contents of "ESD images and objects"

2 ESD and Teacher Education

In recent decades schools have been called upon to tackle the global challenges associated with sustainable development as it is commonly recognised that possessing a clear understanding of the way personal choices and decisions impact on the world can equip and enable young people to make better personal and professional decisions (UNEP 2010). However, sustainability should not be just another issue to be added to an overcrowded curriculum, but a gateway to a different view of curriculum, of pedagogy, of organisational change, of policy and particularly of ethos (Sterling 2005, p. 50). As a consequence teacher education programmes must facilitate the empowerment of teachers to identify ESD links across the curriculum and to use the creative and innovative approaches necessary to promote transformative learning in their own classrooms (Cusack 2008, p. 2). A range of supranational policy initiatives and supporting literature serve as an important platform to underpin the reorientation of teacher education to address ESD, for the promotion of active teaching and learning methodologies on ESD themes and concepts, and as an impetus for curriculum innovation.

The Council of the European Union invited all member states to ensure that

teachers and trainers are adequately equipped to teach complex issues linked to ESD, through initial education as well as in-service training, and providing them with appropriate and up-to-date tools and learning materials for ESD (Council of the European Union 2010, p. 6).

Previously, UNESCO (2005), in their guidelines on re-orientating teacher education to address sustainability, highlighted the importance of suitable ESD resources and methodologies. They recommended that materials should be made available to student teachers on local and global sustainability issues and that pedagogical techniques should be promoted that foster higher-order thinking skills, support decision-making, involve participatory learning, and stimulate the formulation of questions (UNESCO 2005, p. 44). Furthermore, Hopkins and McKeown (2005) stressed that reorienting teacher education must involve curricular change and ensure that the programmes and policies of teacher education providers address ESD concepts and themes in a critical and reflective process whereby appropriate and meaningful action is modelled and curriculum change is supported.

Grace and Gravestock (2008) describe transformative or transformational learning as "...learning that goes beyond factual knowledge to creating real change in the learner. It is learning that involves questioning assumptions, values, beliefs and so on" (Grace and Gravestock 2008, p. 30). Active and transformative methodologies of teaching and learning provide opportunities for learners to work in their preferred learning style together with enhancing interaction between educators and learners, learners themselves, and learners and the topic (Cusack and O' Donoghue 2008). This is in contrast to transmissive methodologies that involve more formal, teacher-centred approaches.

The methodologies employed by the project partners in the student teacher workshops and those for inclusion in the Home Economics specific toolkit therefore prioritise a type of education which

moves away from conventional didactic teaching methods and towards more active, participatory and interdisciplinary approaches, and they promote learning that results in positive action for social and personal change (Hogan and Tormey 2008, p. 5).

3 Background

The project structure and methodologies employed to realise the project aims were influenced by a number of factors including the prior ESD resource development and dissemination experiences of the project partners and the curricular context (i.e. Home Economics in Ireland) within which the project is situated. This section gives background detail relevant to each of these factors.

3.1 "Images and Objects" Development

In 2008 a resource "Education for Sustainable Development: Images and Objects" active methodology toolkit was published by the CCN to support the delivery of ESD in the classroom. This toolkit was developed by a CCN task group made up

of members from eleven countries across Europe who developed teaching/learning resources focusing on the use of active and transformative methodologies. One of the project partners was a member of this task group and took responsibility for both leading the toolkit initiative, and the compilation and editing of the resource. The production of the toolkit was funded by both the CCN and by the Department of Education and Skills (DES) in Ireland as part of its commitment to the United Nations Decade of Education for Sustainable Development (2005–2014).

The success of the toolkit as an ESD teaching and learning resource is based on the fact that it focused on the use of visual stimuli and incorporated a set of images with supporting activities to provide a "quick start" for teachers, in both formal and informal education settings, wishing to integrate aspects of ESD into their teaching and learning environments. All of the activities were piloted in a variety of educational settings (post-primary, teacher education, adult education etc.) prior to the publication of the final resource. The information and activities presented in the toolkit are therefore accessible and user-friendly. The toolkit was disseminated to all post-primary schools in Ireland and was utilised in initial teacher education programmes and in a variety of teacher continuing professional development contexts.

In Ireland CDVEC CDU staff pursued an experiential approach in the distribution of the resource whereby many teachers participated in sample activities when receiving a copy of the toolkit and were therefore more likely to utilise the resource in their own teaching. The toolkit was also widely disseminated throughout Europe by members of the CCN network and has subsequently, been translated into several languages. In Australia the toolkit was reproduced by The Home Economics Institute of Australia (HEIA) in their journal and PDF versions of the toolkit were disseminated globally.

3.2 Home Economics in Ireland

Although no one discipline or subject can claim ownership of ESD, Home Economics is of special importance since it is a field of study and a profession which is situated in the human sciences and draws on a range of disciplines to achieve optimal and sustainable living. It is therefore an ideal curricular space within which to address issues related to sustainable development. The International Federation for Home Economics (IFHE) identifies Home Economics as a "field of study that draws from a range of disciplines to achieve optimal and sustainable living for individuals, families and communities" (IFHE 2008, p. i). Pendergast also notably emphasises that Home Economics as a curriculum area:

Does not teach a skill for the sake of that skill, it teaches for application, it teaches informed decision making in endless scenarios, it teaches evaluative and critical thinking skills, it empowers individuals – no matter what their context is (Pendergast 2001, p. 8).

Students who study Home Economics can cultivate an understanding of the interdependence of their everyday lives with the wider environment and with that of other human beings (HEIA 2002). Home Economics education, nationally and internationally, has established ESD as a core value.

Compared to some other European countries, Home Economics in Ireland has developed as, and remains, a unified field of study. Essentially, this means that the core areas of the field; family resource management, food studies and textile studies are practiced together for the betterment of individuals and families and provide "a holistic and integrative understanding of everyday life within an ecological system of interdependent parts" (Dennehy 2007, p. 63). The holistic and integrative approach of Home Economics across these areas means the subject is ideally placed to integrate a wide range of sustainable development principles (Tormey et al. 2008). At post-primary level in the Republic of Ireland, Home Economics is offered as an optional curriculum subject at Junior Cycle (12–15 years) and Senior Cycle (15–18 years), and is also frequently offered as shorter, locally developed Transition Year (gap year) modules.

The interlinking areas of textile, consumer and food studies in the Irish Home Economics curriculum generate awareness regarding the positive consequences of sustainable and ethical consumption and use of textiles, clothing and food globally. As every consumer decision is a principled decision with ethical and ecological implications, the core areas of Home Economics are charged with developing morally conscious consumer behaviour.

4 Research Objectives and Methodology

The objectives of the action research element of the project included the provision of opportunities for students to:

- critically analyse ESD concepts and themes;
- discuss the applicability of the "ESD Images and Objects" toolkit activities and the potential of these to support the integration of ESD in the post-primary context; and
- contribute to the evolution of ESD curricular resources specifically for Home Economics.

The research project involved 52 first year Bachelor of Education (Home Economics) student teachers in St Angela's College, Sligo, Ireland. It was undertaken in three phases during the 2010–2011 academic year. A mixed method approach to the collection and analysis of data was utilised.

In *phase one* student teachers were informed of the aims and objectives of the research project. They were asked to complete a questionnaire which required the identification of words/phrases that they associate with Sustainable Development and to indicate whether they had studied aspects of Sustainable Development

previously. This assisted in building a profile of the background knowledge of the participants in relation to Sustainable Development.

Phase two involved a half-day workshop with 52 student teachers. Participants were divided into ten groups of five. Using a range of active and transformative methodologies, with a focus on visual stimuli, the students discussed their understanding of issues related to sustainability and responsible living. Additionally, they debated the potential for the integration of ESD within the Home Economics curriculum and the challenges associated with teaching ESD in a post-primary context.

During *phase three* student teachers reviewed the toolkit in an interactive discussion forum. They used a framework with predetermined criteria which facilitated critical discourse about the applicability of the toolkit approaches and methodologies, and the potential of these to support the integration of ESD in the Home Economics post-primary context.

It is important to consider the profile of the student teachers taking part in the project as they are at the start of their professional careers and therefore, just beginning to develop their professional teacher identity. Consequently, it could be argued that they may not have sufficient teaching experience to identify ways in which the activities detailed in the toolkit could be facilitated with students across a variety of ages and learning styles. However, the project partners considered that, as recent graduates of the post-primary sector, student teachers are a valuable source of information about the experiences of young people in both Junior and Senior Cycles. In addition, they provide the perspective of future teachers as they participate in the creation of their own curriculum content and methodology. The data discussed below will therefore be considered by the project partners in the development of a Home Economics specific toolkit.

5 Findings and Discussion

Fifty two student teachers participated in the study (51 = female; 1 = male). 42 of these student teachers were aged between 17 and 19 years old; eight were aged 20–23; one was in the 20–23 years age bracket and one student teacher was 34 years old.

5.1 Student Teachers Understanding of the Term "Sustainable Development"

Only 20 of the student teachers had previously studied topics relating to sustainable development in their post-primary education. Home Economics, Geography and Civic, Social and Political Education (CSPE) were cited as the only subjects where these topics were discussed and were the source of the students' knowledge in relation to Sustainable Development. The majority (N = 32) indicated that they had no previous experience of studying topics related to sustainable development. Of this group thirteen student teachers further reported that they "do not know what sustainable development means".

In order to ascertain the student teachers' understanding of the term sustainable development, students were presented with a list of 67 words/phrases. The list was sourced originally from a compilation of documents and papers relating to the United Nations Decade of Education for Sustainable Development. Student teachers were asked to select the words/phrases that they associated with Sustainable development. 47 selected "Environment" and 41 selected "Conservation" as the words/phrases they most associated with sustainable development. "Sustainability" was ticked by 36 student teachers. Other words/phrases they closely associated with sustainable development included: "Recycle" (N = 36); "Reduce" (N = 34); "Responsibility" (N = 25); "Home Economics" (N = 22); "Education" (N = 6) and "Action" (N = 14). Only 3–4 students identified sustainable development with words such as "Spirituality" and "Hunger" were not selected by any student teacher as being associated with sustainable development.

As outlined in a similar study by Cusack (2008) with primary student teachers, the Home Economics student teachers placed a greater emphasis on the environmental words/phrases associated with sustainable development rather than the social or economic elements. This is obviously problematic since:

It is imperative that student teachers are enabled to identify the relationship between the environment, society and the economy. True understanding can only be achieved through critical engagement with the interrelated impact of environmental, socio-political and economic factors and a commitment to make a positive difference (McCloat and Maguire 2008, p. 6).

This finding again highlights the importance of re-orientating teacher education programmes to equip teachers to teach about the complex issues linked to ESD (Council of the European Union 2010).

5.2 Impressions of the "ESD Images and Objects" Toolkit

The student teachers participated in group discussions and recorded their impressions of the toolkit. They were asked to respond to a series of statements related to the toolkit. Each statement was designed to elicit information that would inform the later adaption and development of a toolkit for Home Economics. Groups were asked to rate and comment on: (1) the level of clarity of the information and (2) instructions presented in the toolkit; (3) the range and (4) quality of the photographs included; (5) the applicability of the specific methodologies detailed in the toolkit; and (6) the general relevance of the toolkit to the post-

primary classroom. The six statements were rated on a scale from one to five, with one being a poor rating and five denoting an excellent rating. Table 1 indicates the rating allocated to each statement by the groups of students:

Statement	Poor	Fair	Average	Good	Excellent
Clarity of information provided in the toolkit	0	1	4	4	1
Clarity of the instructions provided in the toolkit	0	0	1	4	5
The range of photographs provided in the toolkit	0	1	0	4	5
The quality of the photographs provided in the toolkit	0	0	2	4	4
The applicability of the methodologies/approaches outlined in the toolkit for use in the post-primary context	0	0	4	6	0
The relevance of the toolkit for use in the post-primary context	0	0	3	5	2

 Table 1
 Student teachers' rating of the toolkit (Number of groups)

5.2.1 Clarity of the Information and Instructions in the "ESD Images and Objects" Toolkit

Regarding the overall clarity of the information in the toolkit eight groups rated the clarity as either average or good. Some comments indicated that participants experienced varying levels of understanding about some of the concepts and language in the resource, for example: "The information was clear in some parts but unclear in others"; "[...] the words were a bit complex"; "Clarity was good throughout however some phrasing should be explained [...]".

One group of participants recorded concerns about the opening sections of the toolkit stating "there was a lot of information on the first few pages which was a little confusing at times". This was a reference to: detail about the CCN; the task group that developed the "ESD Images and Objects" toolkit; information about Sustainable development and the UN Decade of ESD; and, brief references to theory on the role of active teaching and learning approaches in ESD.

Among participants there was a higher level of satisfaction with the clarity of the instruction with regards to the educational activities in the toolkit with nine groups rating the clarity as good or excellent. Comments reflecting this high satisfaction level included "very good instructions and easy to understand"; "all steps were outlined very clearly on what to do in an easy to follow method and reason for each step given"; "tells you what you need for activity and benefits of each step".

5.2.2 The Range and Quality of the Photographs in the "ESD Images and Objects" Toolkit

With regard to the bank of photographs provided in the toolkit nine groups rated the range as good or excellent and eight groups felt that they were of good or excellent quality. Positive comments about the range of photographs included that "they were clear, descriptive and colourful, very appealing and good for facilitating different types of learning"; "they are diverse, interesting [...]"; "all very different which was good". In contrast one group felt that the photographs were: "nearly all too structured, to an extent too perfect [...] they were nearly too obvious as regards message depicted". Most participants indicated that the images were of good, clear quality: "very good quality, allowed me to look at a picture in different perspective"; "very detailed and life-like. All were clear and visible"; "very clear interesting pictures [...]".

5.2.3 Applicability of the Methodologies Outlined in the "ESD Images and Objects" Toolkit for Use in the Post-Primary Context

In relation to the methodologies outlined in the toolkit six groups stated that the approaches were applicable in the post-primary context. Comments included: "[...] it puts emphasis on getting learners more involved, it also puts emphasis on group work". Four groups rated the resource as having "average" applicability. Two groups felt that the methodologies and approaches were more suited to higher order learners or learners in more senior classes. However, this was contrasted by other groups who saw the benefits of using "photographs for visual learners, also students with language differences", and the "range of methodologies for using pictures so you can pick the best one that suits the class".

Overall relevance of the toolkit for the post-primary context was rated as excellent by two groups while five groups rated it as good and three groups as average. In their comments student teachers indicated a range of areas of relevance. These included the curricular subjects of Home Economics; CSPE; Social Personal and Health Education; English; Religion, Woodwork etc.; relevance for students with different learning styles; and age relevance in terms of being more suitable for older learners rather than younger learners. Other comments from groups regarding relevance of the resource for post primary included that the toolkit "highlights the importance of sustainable development"; "develops thinking in relation to the topic" and "all different types of activities [are] included for each style of learning and all individuals can have perspective".

5.3 Relevance of the "ESD Images and Objects" Toolkit to the Home Economics Curriculum

Student teachers engaged in critical discourse in relation to the potential for the integration of ESD within the Home Economics curriculum and the challenges associated with teaching ESD in a post-primary context. Statements in relation to potential integration of ESD themes at Junior and Senior Cycle were rated on a scale of one to five, with one indicating strongly disagree and five indicating strongly agree. Table 2 indicates the rating allocated to each statement by the groups of student teachers.

Student teachers were asked to identify the potential for use of the toolkit in the Home Economics curriculum at Junior Cycle on a five point rating scale. Interestingly, only three groups "strongly agreed" that there was potential for the use of the toolkit at Junior Cycle and outlined "it [is] relevant to all Home Economics core areas and includes all kind of learners and some images catch your attention". One group strongly agreed with the potential use of the toolkit "as sustainable energy is part of the Junior Cycle curriculum" while another questioned whether the "environment section of the Junior Cycle Home Economics" is sufficient for integration of a worthwhile ESD exercise.

Four groups "disagreed" that there was any potential for the toolkit to be used at Junior Cycle because a "bright class and excellent teacher" [would be] required. Furthermore, a group outlined that "we feel that some of the content was too difficult for people of this age group and would not be suitable". The suitability for Junior Cycle level was also questioned by another group who stated the toolkit was "too complicated, too high pitched and long".

Contrastingly, nine groups either "strongly agreed or agreed" that the toolkit would have potential for use in the Senior Cycle Home Economics curriculum since "people at this stage might be able to understand more of the content. It would also help in home management and the housing elective". The presentation of the complexity of concepts incorporated in the toolkit to Senior Cycle students was not a concern with one group of participants stating "it [is] pitch appropriate" and another group commenting that the activities within the toolkit were interesting and that "children are at a higher level and so could comprehend images better". However, a third group recommended that "there needs to be more relevance to learners lives".

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Potential for use of the toolkit in the home economics curriculum at junior cycle	1	4	2	0	3
Potential for use of the toolkit in the home economics curriculum at senior cycle	0	1	0	5	4

 Table 2
 Student teachers' rating of the potential use of the toolkit in the home economics curriculum (Number of groups)

Participants were asked to suggest any changes which needed to be made to the toolkit to make it suitable for a Home Economics teacher to use in their classroom. Two of the ten groups stated that the use of "simpler language and clearer steps that students can make" would improve the toolkit and specified that "some of the information needs to be clearer and simplified for use in the classroom". It was mentioned that the toolkit required more "relevance to teenager's lives" and to be "more Home Economics centered". As an additional resource one group suggested to "put pictures in CD for PowerPoint".

When asked to identify specific Home Economics themes and curriculum content which needed to be included in the toolkit participants responded with a variety of different suggestions. Three of the groups identified "energy conservation", while four of the groups suggested "waste" and "waste management". Other suggested themes included: "ethical fashion", "energy in the home", "citizenship" and "sustainable food practices".

Participants also suggested the addition of images specific to teaching and learning in Home Economics. Other ideas for possible images included: "wind-mills" "solar panels" "large appliances" and "compost bins".

6 Recommendations and Conclusion

Two specific sets of recommendations have emerged from this project. The first set arose from the very concrete suggestions from student teachers with regards to the development of the Home Economics specific toolkit while the second is based on the analysis undertaken by the project partners of the effectiveness of the research process.

The research participants suggested that during the development of the Home Economics toolkit consideration should be given, in particular, to making the materials more user-friendly for those new to ESD language and concepts. A number of additional specific suggestions were identified, including the following:

- Information regarding CCN/PERL should be minimised and situated on the inside front cover of the Home Economics toolkit.
- The adapted toolkit should have a concise introductory section which is specifically tailored for a Home Economics teacher.
- The toolkit should include a brief explanation of the United Nations Decade of ESD and an explanation of sustainable development which will be appropriate to teaching and learning in the post-primary Home Economics context.
- Home Economics specific themes and curriculum content identified by research participants should be considered for inclusion e.g. energy and waste management topics.
- Although the new toolkit is Home Economics specific, references to other relevant post-primary curricular areas should be made, thus highlighting the potential for cross curricular linkages.

- A"taking/making images" section should be included to describe how photographs can be taken, collected or downloaded from the internet.
- The range and standard of photographs is crucial as the quality of some toolkit images was questioned.
- The use of bullet-points in the activities instruction section should be included to ensure maximum clarity for users.
- An extended range of colours other than the black and green used in the original toolkit should be considered.

Following an analysis of the three phases of the project, the project partners decided to re-run the action research element. The second iteration of the project included additional phases as a means of further linking teacher education and curriculum development elements of the project. The additional phases involve student teachers' participating in a competition to submit photographs that they associate with ESD and subsequently, using the draft Home Economics toolkit while on teaching practice. They are required to keep a reflective diary, and encouraged to reflect on the curricular relevance, and the use and effectiveness of the toolkit after each lesson. The final phase involves a re-administering of the initial questionnaire, an analysis of the reflective diaries and conducting a further series of focus groups in order to evaluate the effectiveness of the Home Economics specific toolkit as a classroom resource.

The on-going process of engaging with student teachers will help to ensure the production of a valuable Home Economics toolkit which will benefit teaching and learning in the classroom. It is also evident that participation provides student teachers with opportunities to develop capacity to engage with sustainability and responsible living themes; to consider how these might best be integrated in the post-primary context; and, to contribute to the evolution of curricular materials which will have real relevance to their teaching careers.

The project provided participants with opportunities for professional development through involvement in a curriculum development initiative. However, it is also important to highlight that for the wider cohort of Irish Home Economics teachers, professional development seminars exploring the new Home Economics toolkit will be critical in embedding toolkit themes and activities into Home Economics classroom practice. This focus on teacher professional development is an investment in the future and a means of resourcing the education system to deal with some of the key issues facing society today.

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