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Experiential learning as a strategy for reducing household food waste among young Greeks

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Title

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Abstract

Background: Food waste is a contemporary challenge with impacts on the environment, economy, and society. Every year 1/3 of the food produced is wasted, where the households are responsible for 53% of the total food waste. In Greece, 87 kg of household food waste are produced per inhabitant/year. Youth are among the high food waste producers.

Objective: The purpose was to investigate whether experiential learning stimulated pro-environmental behaviour for household food waste prevention among young people (aged 18-21 years) in Greece.

Methods: This qualitative study was divided into four-phases; a minor questionnaire, two focus groups and an intervention. The focus groups approach was based on the consumption characteristics of Greek consumers. Experiential learning was used as the intervention method to develop food waste prevention skills.

Results: The participants were interested in gaining practical knowledge and cooking skills for food waste prevention as they found it is an important issue. They had theoretical knowledge and understanding on food waste prevention which was gained through family practices, awareness campaigns, and on the Internet. However, they lacked practical knowledge. The participants through focus group discussions reshaped their thought process on food waste prevention. The experiential learning intervention provided useful skills and practical knowledge, that will help them reach the target of food waste prevention.

Conclusion: Experiential learning can be used as a tool for stimulating youths to adopt pro- environmental behaviour for food waste prevention. Experiential learning provides all the tools necessary to achieve this target, both theoretical awareness of the subject and individual responsibility as well as skills, theoretical and practical knowledge.

Keywords

Food waste prevention, food waste behaviour, experiential learning, theory of planned behaviour, youth.

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Preface

During the journey of this master's programme, I became interested in the subject of sustainability and specifically food waste prevention. Studying articles and research on the subject I found out that Greece has room for improvement when it comes to food waste prevention.

I realized that I also had limited knowledge and awareness of what is food waste, and that food waste and food waste prevention is still a subject not taught in school. As a result, I thought it is a good idea to try and transfer the knowledge I gained to others. I like cooking for my family, and I am a mother of two boys. It all started when I tried to show my children food waste prevention methods. This inspired me to try to stimulate but also increase the knowledge on food waste prevention among Greek youths today.

I would like to take this opportunity to thank my family who supported me during my studies, and my husband who was patient, understanding, and had faith in my abilities. Also, I would like to thank my supervisor, Hanna Sepp, for her positive comments, inspiration, guidance, and support throughout the writing of this thesis.

Despoina Chioti, 2023

Introduction

Food waste is a multifaceted issue that affects the environment (emissions, pollution, land use etc.), food management systems (all stages of the food chain) and society (food insecurity, hunger). In the Foreword of the Food Waste Index Report, Inger Andersen wrote “If food loss and waste were a country, it would be the third biggest source of greenhouse gas emissions.” (UN Environment Program, 2021, p. 4).

One third of the food produced is not consumed; waste occurs in all stages of the food chain, and the amount of food waste produced is 1.3 billion tons per year. Food waste produced at consumer/ household level equals to 53% of the total food waste. The per capita food waste in Europe and North America (high income countries) is estimated at 95-115 kg/year (Food and Agriculture Organisation of the United Nations, 2011). UNEP food waste index reports that the estimated global average of food waste in 2021 is 121 kg/per capita/ year (UN Environment Program, 2021).

Food waste has been identified as a key issue by the European Commission and the United Nations. Both organisations have taken action, the former by launching a Food Waste/loss Prevention Hub (EU Food Loss and Waste Prevention Hub) and the latter through the UN Environment Programme of Sustainable Development Goals. The 17 Sustainable Development Goals were adopted by World Leaders in September 2015, where SDG 12 “Sustainable Consumption and Production” (FAO, 2016) and target 12.3 states the need to halve the global food waste in retail and consumer levels by 2030. UN Food and Agricultural Organisation (FAO, 2011) coordinates global initiatives and brings decision makers and key players together in an effort to facilitate decision making for reduced food waste.

In Greece, according to the EU Statistics in 2020, household food waste was reported at 87 kg/inh./year (Eurostat, 2022), of which 40 kg are considered to be avoidable food waste (Lasaridi, 2022).

Youth are a key stakeholder for a sustainable environment, as it is stated by UNEP “*they are the advocates of future generations*” and are those that can bring change and introduce pro-environmental behaviour. (UN Environment Programme Civil Society Engagement, 2023; de Leeuw et al., 2015). Developing pro-environmental behaviour for food waste prevention can assist to reach the Sustainable Development Goal 12.3 of halving food waste levels. Furthermore, even though youth have to carry the weight of environment’s overexploitation from past and current generations, they do not seem to be committed to pro-environmental behaviour (de Leeuw et al., 2015). As per *WRAP - Food waste trends survey 2021*, the age group that produces most avoidable food waste is between 18 and 34 years of age.

Theoretical knowledge on food waste prevention is not enough in order to achieve the target (Kritikou et al., 2021). Research has shown that in the age group of 18 and 34 years of age the main reasons for food waste production is bad in-store behaviour and food management at home (Bravi et al., 2020). Food waste prevention practical knowledge is not included in the Greek school curriculum (Photodentro, 2013), and according to Grønhøj and Thøgersen (2012), parents and family, in general, play a key role in pro-environmental consumer practices, the same applies in Greece. Family plays an important role in learning for the next generation.

Experiential learning according to Kolb (1984, p. 21) is “*a holistic, integrative perspective on learning, that combines experience, perception, cognition and behaviour*”. Experiential learning can fill the gap of lack of practical knowledge on food waste prevention of youth. As it is mentioned in Kolb (2014), experiential learning “*offers a system of competencies for describing job demands and corresponding educational objectives, and it emphasizes the critical linkages that can be developed between the classroom and the “real world” with experiential learning methods*”. In this study food waste prevention is the job demand and the educational objectives is the practical knowledge necessary to reach the target of food waste prevention.

Objective/aim

The aim is to investigate whether experiential learning stimulated pro-environmental behaviour for household food waste prevention among young people in Greece.

Research questions

- How was the concept of food waste understood?
- How can experiential learning be used as tool for food waste prevention?
- How can young people go from theoretical to practical knowledge about food waste?
- How can food waste prevention awareness be turned into pro-environmental behaviour for food waste prevention?

Background and theoretical framework

This part is dedicated to present studies that identify the Greek household attitudes and behaviours responsible for food waste, as well as of the models on which this study was based to identify the drivers of pro-environmental behaviour and how these can be adopted for food waste prevention.

The model of Theory of Planned Behaviour was used in order to try to understand which of the “forces” that drive attitude play the most significant role towards the behaviour (food waste prevention). As it is argued by de Leeuw et al. (2015), to try and have accurate information is not as important as to understand the beliefs people have on the issue and how these affect their intention and behaviour. In the same article it is also stated that, research has not identified yet key beliefs relevant to pro-environmental behaviour among young people. Using the Theory of Planned Behaviour we can understand the drivers of intention and behaviour and adjust the educational methods to achieve food waste prevention.

Furthermore, the model of experiential education was used to display that knowledge is an ongoing process which continues and does not stop when the school years end. Education and learning can have forms other than schooling and experiential education can help the individual cope with current and future challenges. Environmental crisis is among those challenges and sustainability can be achieved through experiential

environmental adult education that goes beyond work training and concentrates on the ecological dimension of learning and action (Sumner, 2003, p.43 - 44) .

Food waste as a sustainability challenge

Food waste is a great sustainability challenge connected to social, economic and environmental issues. If we have a look at the statistics, tackling food waste can help in more than one sustainability goals (Why reducing Food Loss and Waste matters, 2021).

According to Food and Agricultural Organisation (FAO, Sustainable Development Goals) food waste prevention can help to:

- ✓ reduce *hunger impact* as 1/3 of the food produced is either lost or wasted (Food and Agriculture Organisation of the United Nations, 2011), SDG 2 (End hunger, achieve food security and improved nutrition and promote sustainable agriculture)

According to the definition that is presented by the Food and Agriculture Organisation of the United Nations, *food loss* “refers to any food that is discarded, incinerated or otherwise disposed of along the food supply chain, which starts with harvest/slaughter/catch up to but excluding the retail level, and the food does not re-enter the supply chain for any other productive use, such as for feed or seed”, while *food waste* “to the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food service providers and consumers” (Technical Platform on the Measurement and Reduction of Food Loss and Waste, 2023)

- ✓ reduce *water consumption* as 66 trillion gallons are spend to produce the amount of food that either is lost or wasted, SDG 6 (Ensure availability and sustainable management of water and sanitation for all)
- ✓ reduce or not increase the *land use* for food production as 1.7 million square miles were used for producing the food that was lost or wasted, SDG 15 (Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss)
- ✓ reduce the *climate impact* as wasted food is responsible for 3.3 billion tons of greenhouse gases which equals to 10% of global greenhouse gas emissions SDG 13 (Take urgent action to combat climate change and its impacts)

Food loss and food waste equals approximately to one third (1/3) of the food produced worldwide, of which 53% is household food waste. The environmental implications attributed to food loss and waste on Europe – are approximately 27% of the total environmental impacts related to consumption. In Greece, food loss and food waste environmental impacts according to Abeliotis et al. (2015) are analysed in a) higher Greenhouse Gas (GHG) emissions (the total GHG emission from the avoidable food waste from Greek households are calculated to be 43.8 kg CO₂-eq./cap./y), b) faster saturation of the landfills (as 98% of the food waste end up in landfills), (Abeliotis et al., 2015).

Household food waste in Greece for 2020 was reported to be 87 kg/inhabitant per year (Eurostat, 2022) of which 40 kg are considered to be avoidable food waste (Lasaridi, 2022). In 2015 household food waste, according to Abeliotis et al. (2015) was estimated at 98.9kg/inh./year. Though the amount of household food waste has reduced significantly it is still far above the average household food waste produced in other European countries (estimated EU average for 2020 is 70kg/inh./year) (Eurostat, 2022). Sustainable Development Goals (SDG) target to halve the per capita food waste at the retail and consumer level by 2030 (FAO, 2016).

In the systematic literature review by do Carmo Stangherlin et al. (2018), titled: “Drivers and barriers to food waste production”, the main characteristics of household food waste generation were identified as follows: a) sociocultural and retail factors, b) household characteristics and psychological influences (personal factors, and the behaviour, habits and routines related to food provisioning) and c) culture, which directly influences all variables. Analysing further the aforementioned, bad food storage conditions and/or skills, planning meals in advance, reuse of leftovers, understanding of date labelling, reduce consumption of perishable foods and adequate storage, are the main reasons for household food waste generation. These need to be integrated in food management skills to reduce food waste as part of effective food management strategies. These characteristics apply to Greek households as well (Kritikou et al., 2021).

In Greece, the food waste composition for the avoidable household food waste is a) vegetables 21%, b) cooked food without meat or fish 20%, c) dairy 17%, d) fruits 15%, e) bread 10%, f) cooked food with meat or fish 7% and the rest is desserts, dried food and snacks (Abeliotis et al., 2019). From the composition of food waste we understand that

waste occurs also during the phase of food preparation as well, food waste concerns not only leftovers that are left on the plate which end up directly to the bin (Carmo Stangherlin et al., 2018, p. 2376).

To date, according to the literature review of do Carmo Stangherlin et al. (2018), macro-environmental changes have been made for food waste prevention. These include retailers' engagement, raise awareness of the issue and creating anti-wastage social norms. Consumers are potentially aware of the anti-wastage behaviour, but this knowledge is not transferred into practice, therefore we need to find ways on how to achieve the transformation of food waste awareness to food waste prevention. As identified by do Carmo Stangherlin et al. (2018), not one strategy is enough to tackle household food waste generation as the main contributor is consumer's behaviour.

Previous research and interventions about food waste behaviour

Research on food waste prevention by Kritikou et al. (2021) identified that: "people need help to make sustainable choices", and such help comes through education, skills and high-quality information. In the same article, it is also stated that formal and informal environmental education can help towards adopting sustainable environmental behaviour through a combination of experiential education and instructions. Formal education refers to schooling while informal education refers to lifelong learning for any interested individual (Sumner, 2003). Additionally, Ioannou et al. (2022) identify as behavioural change interventions in the form of: 1) the Information and Awareness Campaigns and 2) Adult and Environmental Education. Information, in the form of numerical data, tips about shopping, storage and food preparation, is spread via awareness campaigns which aim to motivate the individuals to adopt new habits in their daily activities for reducing the amount of food waste. Adult environmental education involves the ecological dimension not usually included in schooling, which aims in sustainability. This type of learning addresses usually local issues (Sumner, 2003).

The "A2U Food" (Chroni, et al., 2019) research project, that had as a case study Heraklion city in Crete Island – Greece, developed the "A2UFood Training Kit" by Ioannou et al. (2022). This toolkit was designed to train the trainers (teachers) in sustainable

consumption habits, and has already been used with good results. The target is for the teachers to use this toolkit for food waste prevention education at school. The Greek School's curriculum does not have relevant teaching material as a search for Food Waste or Food Waste Prevention on the official educational repository in all education levels of the Greek education system, has not yielded information (Photodentro, 2013). The A2U Training Kit teaches through role-play many aspects of the food waste issue (i.e. the meaning of labels, the importance of appropriate storage conditions, different reasons of food waste production around the world etc.), which would be a useful addition to the Greek school curriculum.

Experiential learning

Experiential learning according to Yardley, Teunissen and Dornan (2012, p. 161), is the transformation of real-life experiences to knowledge. This thesis study was inspired by educational programmes developed and applied in other countries like in Spain, (Anton-Peset et al., 2021) and in Singapore ('Love Your Food @ Schools', 2017). Through these programmes, primary school pupils are taught of the food waste implications and actively learn how to adopt sustainable consumption habits. These programmes are based on experiential learning and in many countries experiential learning is officially acknowledged and the knowledge gained through experience can be assessed and lead to a college degree (Kolb, 2014).

Learning is a lifelong experience and experiential learning can complement classic classroom learning techniques. According to Kolb's (2014), experiential learning model (Fig. 1), experiential learning combines work, education and personal development. The workplace can be seen as a learning environment which complements formal education and stimulates personal development. The continuous cycle of experiential learning receives feedback from meaningful work and career development. In this study, experiential education can combine prior theoretical knowledge, for example knowledge gained through awareness campaigns, and apply it in a real-world setting, like a kitchen, or while shopping in a supermarket which represents *work*, in Kolb's experiential learning model. *Education* in this study is represented by the learning experience of the intervention where food shopping and cooking skills are demonstrated which lead in a

personal development of adopting pro-environmental behaviour for food waste prevention.

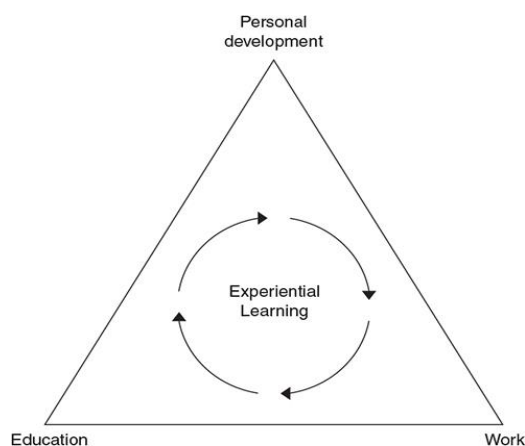


Figure 1 Kolb's experiential learning model (Kolb, 2014)

In a literature review by Deslaurier et al. (2016), it is stated that learning by actually performing the process also provides the individual the reassurance of self-efficacy and ability to perform the process correctly, in this case the pro-environmental behaviour to food waste prevention. This is also in line with the Perceived behavioural control of Ajzen (1991), that is presented below.

Moreover, experiential learning is in line with adult education as described by Sumner (2003), and addresses the problem identified in Greece, where food waste prevention methods are not taught in Greek schools, neither on a theoretical or practical level. In addition, this learning method targets prevention, which is the first level in the food waste hierarchy (see appendix 3). All key actors, including individuals, need tools to facilitate food waste reduction. Greek youths have access to high quality information, mainly from awareness campaigns, on good practices for food waste prevention, but lack training and practical skills on these practices (Papamonioudis and Zapaniotou, 2022). As it was suggested in the research by Visschers et al. (2015), people can benefit from skills training and control experiences, both formal and informal, in order to use good practices and adopt a pro-environmental behaviour. Specifically, consumers may gain knowledge through skills training on: a) how to determine the amount of food they need to buy, b) proper storage techniques for different kinds of food, c) how much food to cook, d) how to take advantage of leftovers safely, to create a new dish etc. (Visschers et al., 2015).

Theory of planned behaviour

The Theory of Planned Behaviour (Ajzen, 1991) will be used to investigate whether the *Intention* of sustainable consumption habits will act as a catalyst to Greek youths' behaviour in order to adopt pro-environmental behaviour towards food waste prevention.

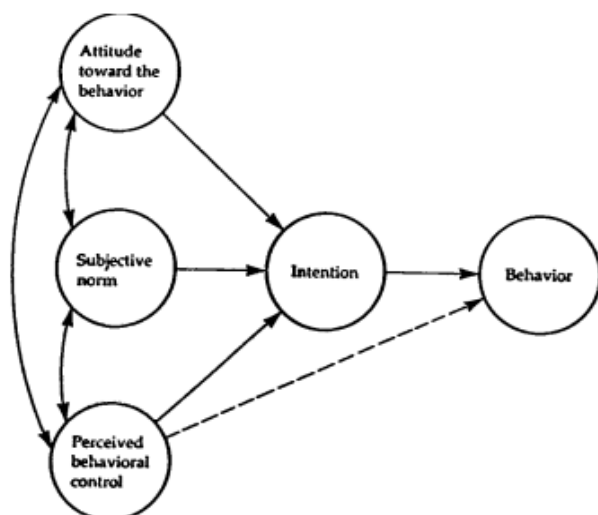


Figure 2 Theory of Planned Behaviour, (Ajzen, *The Theory of Planned Behavior*, 1991)

Intention as shown in figure 1, is affected by three factors a) “Attitude towards the behavior” is related to the personal trait (positive or negative) of the person towards the behaviour, b) Subjective norm is related to the social pressure the person receives to perform or not the behaviour, and c) “Perceived behavioral Control” is related to the person’s confidence of actually performing the behaviour which reflects previous experience. 188). (Ajzen, 1991, p. 188). These factors interact between them and feed to the intention of a person to actual perform a behaviour.

The person decides on the performance and actually displays the behaviour (intention) depending on the following conditions: a) how the person feels towards the behaviour (the personal factor of positive or negative evaluation of performing the behaviour – attitude towards the behaviour) – in this case food waste prevention, b) how confident the person is towards performing the action (positive or negative behavioural control), and c) how important for the person’s peers this behaviour is (positive or negative encouragement (social pressures) put on the person – subjective norm), (Ajzen, 1985, Chapter 2).

According to this theory, human behaviour is driven by goals (Ajzen, 1985). In order to cook dinner, an individual has to follow a series of actions like deciding what to cook, finding the recipe, shopping for the ingredients, etc. However, conscious cooking skills might contribute to food waste prevention (Abeliotis et al., 2019).

Materials and Method

In this study, a combination of methods and approaches have been used in order to investigate whether experiential learning can stimulate pro-environmental behaviour for household food waste prevention among young people in Greece. A minor questionnaire and a focus group was initially used to investigate the Greek youths' theoretical knowledge regarding a) awareness on the food waste problem, b) the impacts (environmental, economic and social) of food waste and c) food waste prevention methods. Then, experiential learning was used as an intervention method to study the participants' perception on food waste prevention, followed by a second focus group where the experiential learning intervention was assessed for its effectiveness in promoting pro-environmental behaviour for food waste prevention.

The research used the focus group method (Gill et al., 2008), as the participants belonged to the same age group, had the same educational background, studied at the same university and the same subject. Also, as it is a group interview, the participants have the opportunity to exchange opinions and discuss the subject. This option works well with the open questions used in qualitative research and results in a richer dataset in comparison to individual interviews (Gill et al., 2008).

Methodological considerations

During the research design (the focus groups and the intervention) the following methods of approaching the problem of food waste were considered.

The focus groups approach was organised having as a basis the consumption characteristics of Greek consumers, identified by Abeliotis et al. (2016). These are:

- consumption behaviour,
- good consumption habits,

- consumers' willingness to adapt to new shopping strategies that would reduce food waste from household food consumption
- consumers' feelings towards food waste
- whether marketing prompts affect consumer's behaviour
- whether good consumption behaviours can overshadow marketing hacks

The focus groups and the intervention would also provide information of the three drivers of intention as described by Ajzen (1991) (Fig. 2). Intention is driven by the a) "Attitude towards the behavior", b) "Subjective norm", and c) "Perceived behavioral Control". The intervention of this study aimed in boosting these three criteria. First, the discussions that took place in the focus groups regarding food waste prevention increased the awareness on the subject and underlined the importance of adopting pro-environmental behavior, which connects to the *Attitude towards the behaviour*. Also, as the study was a group activity, the subjective norm, which according to Ajzen (1991) is "*the perceived social pressure to perform an action or not*" (Ajzen, 1991, p. 188), may have affected the intention of youths to perform pro-environmental behaviour for food waste prevention, because their peers were also positive towards that behaviour.

Furthermore, by actually cooking, as part of the intervention, and having in mind food waste prevention and in the end succeeding in preparing dinner without food waste may have provided the participants the re-assurance that they have the ability of pro-environmental behaviour for food waste prevention. As Ajzen (1991, p. 184) mentions in the Theory of Planned Behavior "... *people's behavior is strongly influenced by their confidence...*". Also, Graham-Rowe et al. (2015) argue that people need motivation to reduce food waste.

Materials

In this study the following materials were used:

- ✦ A questionnaire form. (see Appendix 1).
- ✦ Semi-structured interview guides that were used by the moderator in the focus group meetings (see appendix 5 and 6). The interview guides included the topics that were discussed in the focus groups as well as during the intervention. The

moderator made sure that the questions of the interview guide were addressed during the focus groups and the intervention.

- ✦ The Food waste hierarchy pyramid (Appendix 3, fig. 3), used in Focus Group 1 for indicating to the participants the hierarchy of food waste and underline that prevention is the first priority in food waste.
 - ✦ A menu, which included the recipes used (Appendix 4).
 - ✦ Other materials i.e. cooking instruments, plates, cutlery napkins, fresh food and a scale for weighting the food during the intervention.
5. In addition, the participants were asked to watch (optionally), on their own time, before the intervention the documentary: “Taste the Waste”, by Thurn Valentin, filmed in 2010, which tries to answer the question: “Why we throw away so much food? (Thurn, 2010)” and/ or Wasted! The story of food waste (Chai and Kye, 2017). The documentary “Taste the waste” presents graphically the amount of food waste generated by consumers and “Wasted! The story of food waste” shows ways of how to avoid household food waste. Unfortunately, none of the participants watched the film. The intention was the participants to watch the film before the intervention to get ideas on food waste skills and discuss the sources of food waste. If the intervention was performed in the context of a school class, then this would be shown in the classroom as part of the activity of food waste prevention.

Recruitment of participants

A group of six (6) youths aged between 18 to 21 years old participated in the research, who were recruited by open invitation to the university emails for convenience reasons. This age group was chosen because it has been identified as having higher levels of food waste (Roberts and Downing, 2022, p. 13). The invitation would be addressed to the students of the National Technical University of Athens (NTUA), in cooperation to the secretariats of each School. However, due to time restrictions, the participants were students of NTUA, but the open invitation was sent to a group of friends of the moderator’s son, studying at the 2nd year at the School of Chemical Engineering in NTUA. The invitation was sent to a group of ten (10) students, male and female of which initially six (6) expressed interest (two girls and four boys). In the questionnaire as well

as in the first focus group participated these six (6) persons, however, in the intervention participated only four (4) of these (three boys one girl) and in the second focus group participated five (5) persons (four boys and one girl).

The characteristics of the participants were: a) lives in the family home, b) studies at university level, c) have little experience in food shopping, d) have little experience in cooking.

Data collection

The data collection consisted of four phases, starting with a questionnaire and a focus group, thereafter the intervention and finally a second focus group. These phases are described in Table 1 and the data collection taking place in each if these phases are thereafter described.

The research is graphically described in Table 1.

Table 1. Description of different phases

Phase	Description
Questionnaire	Filled in by each participant individually which contained general questions on awareness, feelings and perception of food waste and the environmental issues related to food waste. Questions about demographic information were not included, as this information was known to the moderator.
Focus group 1	The target was to gain insights into the participants' perception and knowledge on the food waste issue.
Intervention	Consisting of organizing and planning for shopping, cooking and dinner, where the participants would try not to produce food waste or produce as less food waste as possible.
Focus group 2	The target was to discuss whether the intervention had raised awareness of the food waste issue among the participants, and if it had provided them with necessary skills on food waste prevention methods.

Phases of data collection

In this study we assume that the participants have the theoretical knowledge but lack the skills and practical knowledge of food waste prevention and we are going to motivate them to apply this knowledge and turn it into habit.

The research procedure was concluded in four phases as described below:

Phase 1 - Questionnaire

The email had two parts, the first part provided information about the scope of the research (Appendix 1), and the second part was a questionnaire which the participants were asked to fill in (Appendix 2). Google Forms were used for the questionnaire. The questionnaire included 13 open questions which required short answers that the participants wrote themselves. It was estimated that it would take fifteen minutes to fill it in. The answers were analysed before focus group 1 took place.

Phase 2 - Focus group 1

In the second phase only the students that answered the questionnaire in phase one and expressed interest/availability in participating in the research proceeded. The first focus group took place about a week after receiving the answers to the questionnaire. Five students participated out of six that answered the questionnaire. The focus group target was to discuss the issue of food waste and the participants' feelings and thoughts about food waste as well as the implications of food waste (environmental, social, economic). During the focus group the following themes were discussed: a) the participants' views on environmental protection b) what actions might be considered as good practices for food waste prevention, and c) why food waste prevention is important?

In the end of the focus group, the moderator explained to the participants the next phase, the intervention.

The focus group was recorded using a Digital Voice Recorder. The duration of the focus group was 50 minutes and took place at the National Technical University, School of Chemical Engineering, in an empty classroom. The recording was transcribed in Word and analysed before the intervention took place.

Phase 3 - Intervention

Four of the six participants took part in the intervention. The intervention took place during one day and started with the participants meeting at the moderator's house. The first part was to decide what to cook. The participants were informed of the leftovers available, vegetables, and bread available at the moderator's house. It was decided in common by the participants and the moderator that they would try to cook dinner consisting of a salad, that one of the participant's sister liked a lot and he knew the recipe, a garlic bread (Participant's recipe) a main course using the rice and chicken leftovers and a dessert using two overripe bananas. Some cookbooks available at the moderator's library were provided to the participants to help them decide on the menu. (Best ever cook's collection - Chinese, 1997) (Ingram, 2001). After deciding on the two recipes consisting of banana bread for the dessert and Egg fried rice for the main course respectively, as mentioned in the materials section, the participants realized that they needed extra vegetables as the lettuce was not enough to make a salad for all (moderator and four participants), eggs for the banana bread and cheese for the garlic bread. Even though not planned from the start, the participants decided to accompany the moderator to the supermarket for these extra provisions, as they thought it would be instructive and a good place to discuss about products' expiration dates. Also, it would be an opportunity to test the shopping list as a measure for food waste reduction and discuss its limitations. Before starting the cooking, the roles of each participant were decided. During cooking, instructions were given by the moderator to the participants on how to measure the ingredients and decide on the size of the portions, based on the recipe instructions. Participant one (1), responsible for making the salad, was instructed to put aside the parts of the vegetables that would not be used for the salad, in order to decide later if these were suitable for using in the main dish. The main dish's ingredients consisted mainly of leftovers (cooked rice and chicken) the new ingredients would be vegetables, that would not be used for the salad and eggs. The new dish would be egg-fried rice (leftover) with chicken (leftover). Two participants (participant three (3) and four (4)) were responsible for the dessert, who used as leftover two overripe bananas to make banana bread. Participant five (5) made the garlic bread from a leftover baguette and assisted in preparing the main course by deboning the chicken, cut the fresh onions and the leftover lettuce. Later the same participant also helped in the banana bread. The moderator showed

to the participants how to cook the main dish (how much to fry the fresh onion, then the eggs and, in the end, stirring in the rest of the ingredients). Participant two (2) did not attend the intervention.

When the main meal, the salad and the garlic bread, was ready, we had dinner and discussed on the cooking procedure. The quantity of vegetables that would be wasted from the salad was the main point as well as the usage of the overripe fruit used to make the banana bread. The leftover vegetables from the salad were as much as the recipe required, which replaced the frozen peas mentioned in the recipe ingredients.

At that point the moderator was also interested to test the disgust factor. None of the participants was reluctant to eat the food we had prepared. Everybody commented that everything was tasty and fresh.

The cooking part of the intervention, which lasted one hour and eighteen minutes, was recorded using a Digital Voice Recorder. The recorded parts relevant to the research were transcribed in Word and analysed, before focus group 2 took place. Notes were kept for the shopping and the dinner by the moderator, as soon as the intervention finished. These notes were relevant to the participants' comments on the marketing tricks and the package quantities of some groceries. The entire intervention (organising of cooking, shopping, cooking, and dinner) lasted four hours in total.

Phase 4 - Focus group 2

The second focus group took place two weeks after the intervention and at the National Technical University, School of Chemical Engineering, in an empty classroom. In this focus group five (5) participants attended, the same persons that participated in the first focus group. The target in this focus group was to evaluate the results of the intervention. In the beginning the moderator summarized the previous phases and gave the word to the participants. The intention was to ask the participants the same questions/ themes that were discussed in the first focus group. However, as participant 2 did not participate in the intervention, his absence was catalytic as he expressed his curiosity of what had taken place during the intervention. The participants present at the intervention described the event to the absentee, stressing the food saving procedure and which leftover (cooked food) or vegetables were used as ingredients. The themes discussed in the first focus group and the intervention were covered (see appendix 5 and 6). In the end of the focus

group the moderator asked for feedback on the intervention. The focus group was recorded using a Digital Voice Recorder and the recording was transcribed in Word. The duration of focus group 2 was forty-five minutes.

Data analysis

The data from the four different phases were analysed separately using thematic analysis method, which, as described by Braun and Clarke (2006, p.79), is “*a method for identifying, analysing and reporting patterns (themes) within data*”. The data analysis followed the six phases of thematic analysis (Braun and Clarke, 2006, p. 87). This includes a) familiarising with the data, b) initial coding, c) theme identification, d) review of themes, e) naming and defining the themes and f) final report. In order to familiarise with data, the transcripts were read several times while listening to the recordings which helped further in understanding the feelings of the participants. The codes and subthemes identified were noted on the side of the transcripts. These were grouped and formed the themes which were connected to the research questions. The themes identified were data-driven, the inductive analysis method was used as there was no pre-existing coding frame (Braun and Clarke, 2006).

The questionnaire answers (phase 1) were analysed to assess the participants’ willingness to adapt food waste prevention behaviour, which is directly related to the attitude towards the behaviour feature of the theory of planned behaviour model (Ajzen, 1991). Focus group 1 (phase 2) analysis involved a) the evaluation of the participants’ theoretical knowledge on the food waste concept, and b) food waste prevention methods. The results of phase 2 informed the intervention, not as a method but in the content (phase 3). During the focus group sessions (phase 2 and 4) it was observed whether the participants’ behaviour was influenced by their peers, which helped in the evaluation of the influence of the subjective norm (Ajzen, 1991). Finally, during focus group 2 (phase 4) was assessed whether the intervention and focus group 1 stimulated the participants to adapt a pro-environmental behaviour for food waste prevention.

The themes identified were: 1) Theoretical knowledge of food waste prevention behaviour, which was divided in the sub-themes: a) Understanding of the food waste concept, b) Awareness of the food waste impact, and 2) Skills on food waste prevention,

which was divided in the sub-themes a) Recipes / Novel ways of using leftover, b) How to apply the theoretical knowledge of food waste prevention,

Table 2 Summary of the identified themes generated from phase 1, 2 and 4

Themes	Sub-themes	Description
Theoretical knowledge of food waste prevention behaviour	Understanding of the food waste concept	Understand what is household food waste, which are the main sources of household food waste.
	Awareness of the food waste impact	Environmental, Social and Economic dimension of food waste
Skills on food waste prevention	Recipes/ Novel ways of using leftovers	Understanding how to use the recipes for planning food shopping, use of material Use leftover in a creative manner to create new dishes that are different from the “traditional” use of leftovers
	How to apply the theoretical knowledge of food waste prevention	How to store food, transport food from the store at home.

Ethical considerations

The focus group conversations were recorded, for data analysis purposes, and the participants were informed of the recording from the letter accompanying the questionnaire (phase 1). The participants’ anonymity was protected as the questionnaires were anonymous and the names of the participants were not used in the data analysis.

Participation in the research meant that they agreed on the recording during the focus groups and the interventions. Before each meeting (focus group or intervention) the participants were informed that they can withdraw their participation at any moment without explanation. Also, the day the intervention took place, the participants were asked if they had any allergies to any type of food.

The most important consideration was to avoid my own bias since I was both the researcher and the moderator during the focus groups and the intervention. I recognised that I had strong feelings about the subject which might influence the participants' behaviour however as a researcher and moderator I was part of this research (Maxwell, 2013). In order to avoid validity issues and mainly to avoid affecting the participants' opinions, the focus groups took place in a neutral place (empty classroom at the School of Chemical Engineering, NTUA) and I clarified my intentions to the participants before focus group 1 to avoid reactivity, and clarified that they are not tested for their knowledge on food waste (Onwuegbuzie and Leech, 2006).

Results

The results are presented following the four phases of the research procedure. This presentation method demonstrates the evolution of the participants' perception and awareness of the food waste concept from phase 1 to phase 4.

Phase 1 and 2 - Theoretical knowledge of food waste prevention behaviour

This theme is divided in two sub-themes, the first is the theoretical knowledge of what is household food waste as a concept and the main sources of household food waste. The second sub-theme refers to the awareness that food waste is a multifaceted issue and has impacts on the environment, society and economy.

Understanding of the food waste concept

The analysis of the questionnaire (phase 1), provided a broad picture of the participants' theoretical knowledge and understanding on household food waste as a concept. They all agreed that food waste was a serious issue which needs our attention and concerns all of

us. This was apparent from the answers given in the questionnaire and also in focus group one (1).

“a subject worth raising awareness for, since most people don’t even realise it is reality.” [Participant 1 – Questionnaire]

While discussing about the subject of household food waste sources the participants identified that the main sources of food waste were vegetables and fruits followed by milk, bread and cereals. They recognised that this was mainly due to the *preferences* as chocolate was favored compared to fruits when they craved for something sweet. This preference resulted to generating food waste from the fruits that were bought, but not consumed and decayed. Also, when they were serving lunch themselves they felt bored to make a salad to accompany the main dish.

“I like fruits but a chocolate is easier to eat when I crave for something sweet”
[Participant 3 – Focus group 1]

Also, the participants identified that, in Greece, vegetables and fruit are *bought in bulk* (by the kilo usually in open markets) and these are at the top rank of the food waste.

Milk, cereals and bread food waste was attributed to *bad storage habits*, as on many occasions the *use by date* on milk cartons is ignored and the milk with the longer use by date is consumed while the other milk bottle spoils in the fridge. Also, the *attractive packaging, items on offer or multipacks* were the marketing tricks identified as food waste sources by the participants.

“Food waste is to go to the supermarket without a list of the groceries we need and buy more groceries than we need, for example buy milk, when there is milk available in the fridge which results in the milk going past its expiration date and then we throw it away”. [Participant 5 – Focus group 1]

However, misconceptions as food waste were attributed to *overconsumption* or *high spending on food* and misunderstandings surfaced as well, like connecting food waste to the *usage of plastic bags*.

“The amount one spends on buying groceries...how many things one buys... equals 100% in consumption, if I buy 5 kilos of meat but I consume it, then this is not food waste. But if I don’t then this is food waste.” [Participant 1– Focus group 1]

Among the *methods of food waste prevention* that were proposed was *composting* but not everybody agreed on the measure as they did not consider it viable. Another idea was to *feed the pets* with our leftovers.

“There are not recycling bins everywhere in Greece to apply this measure”.
[Participant 2 – Focus group 1]

When asked of the *sources of their knowledge* about food waste the participants mentioned that their source was the “YouTube” or the internet. However, when they were discussing about food waste prevention methods their paradigms were from their parents’ practices.

“YouTube cooking channels and #allazoumesynithies (we change habits) (AB Basilopoulos, 2020)” [Participant 4 – Focus group 1],

and

“Using a list is a good measure for food waste reduction, my mother has a list of the groceries we use and when something finishes or there is one packet left then she puts a tick to that product”. [Participant 5 – Focus group 1]

Some of the ideas regarding food waste prevention occurred because of previous discussions during the same focus group. For example, it was mentioned that fruits and vegetables are the main commodity that is wasted and later on, while discussing about food waste prevention methods, the participants expressed ideas on how to use edible vegetables not suitable for salad because of the “looks”.

“I like pomegranates, but these are difficult to peel, sometimes I peel two or three pomegranates and I put them in the fridge for later”. [Participant 1 – Focus group 1],

and

“The leftovers from the salad can be used for making spaghetti sauce”. [Participant 5 – Focus group 1]

Cooking instruments were also mentioned like the peeler to avoid throwing away a big part of a vegetable due to *bad cooking techniques*.

Awareness of the food waste impact

Awareness of the food waste impact relates to understating that food waste is a multifaceted issue and has impacts on the environment, society and the economy.

Through the questionnaire answers and the focus group discussions, the participants displayed that they have theoretical knowledge on the impacts in all three aspects (environmental, social and economic). They were particularly interested in the environmental impacts and described the environment as their home. Also, they were concerned that further degradation could be a threat to their livelihood and well-being.

“It is our duty to protect the world we live in as a whole. Protecting the environment is part of that. There are so many things that are dependent on a healthy environment, such as wildlife, food production and tourist attractions. If we fail to protect the environment, we will gradually lose all of the other advantages and our quality of life will worsen.” [Unknown participant – Questionnaire]

However, they did not feel *personally responsible* about it and believed it was the states duty to set the rules for avoiding land degradation and over exploitation. On the other hand, they recognised that *wasting small amounts of food* was happening on a daily basis and was considered acceptable by the broad public. Yet, they found this habit unacceptable as they recognised the *social impact* of the action.

“We cannot throw away food when there are people hungry and have no money to buy food”. [Participant 5 – Focus group 1]

Economic impacts did not seem to concern them much. When they were asked if they were aware of any economic impacts, they discussed about the producers’ practices to keep their products price high which leads to food waste. As they lived with their parents, they have not thought about home economy.

Phase 3 – Intervention

During the intervention the participants followed the moderators’ oral instructions. For deciding on the menu, the participants took into account the leftovers and consulted cookbooks for finding recipes.

“OK, we have half a chicken, which is already cooked in the oven, we also have boiled rice”. [Participant 3 – Intervention]

“There is a Chinese cookbook available I will check the rice recipes”. [Participant 5 – Intervention]

Following, the participants made a list with the missing ingredients.

During the shopping, they bought only the ingredients included in the list. The only extra was a bottle of juice, which they consumed during dinner. During the shop along, the participants commented on the “shopping temptations” and raised questions regarding the difference between best before and use by dates. The moderator informed of the new trait with regards to the milk “use by” date which prompts the shoppers to use their senses for assessing the freshness of the milk. This triggered a discussion on the changes that the milk “use by” date has gone through, from having a very short expiration date (3 days) to longer life (7 days).

During the cooking, the participants asked various questions as they were unsure for the quantities and how to calculate the food portioning.

“The cookbook has three different sizes for the banana bread, small, medium and large, which one shall I use?”. [Participant 4 – Intervention]

Also, they were unsure if they had to throw away the outer leaves of the lettuce, even if these were edible, and asked how to wash it. The moderator asked the participant to use the part he considered was suitable to use and leave the rest to use in the stir fry.

“The idea is to use the edible part of the lettuce and I am not judging whether it looks nice or not, correct?”. [Participant 1 – Intervention]

When we reached the point we needed to debone the chicken, one of the participants (female) was not happy to do it with bare hands and felt that nobody would be happy to do it. However, the rest of the participants did not mind. A male participant started the deboning procedure, however, he was unsure of the edible parts.

The participants’ inexperience on food preparation and cooking was shown in all above occasions, where they had to decide on the size of the portions and what ingredients to use.

The cooking skills were another point of discussion and the participants made jokes about it. When a participant spilled the flour for example then he was blamed for creating food

waste. The participants stated that they felt confident to use the scale because they had practiced at the laboratory lessons at the School of Chemical Engineering.

“We are experts in using the scale, we have practised a lot at the laboratory”.
[Participant 3 – Intervention]

The participants were able to follow the recipe for making the sweet, the female participant also stated that she is helping her mother to make sweets at home as well. They were happy to make the salad and the sweet but were unsure of their cooking skills. When they were asked who will cook the main dish, the participants asked the moderator to do the cooking while they watched the procedure.

“I know how to make spaghetti, but I have not used a wok before. You better cook it, just in case we burn it”. [Participant 4 – Intervention]

The result was a salad enough for 10 persons (even though they were only five (5) persons present), a starter (garlic bread) which was enough for all of us, the main dish (egg fried rice), and a banana bread with chocolate for dessert. The participants commented that the salad, the main dish and the starter was enough for everybody, and they felt full. To summarise this phase, the participants had little experience in shopping for food and food preparation but followed with ease the guidelines of the moderator and successfully completed this task. They felt confident to make the sweet and their attempt was successful, however, they were afraid they would fail to cook the main course and preferred to watch instead of performing the cooking.

Phase 4 – Skills on food waste prevention

The theme of skills on food waste prevention is divided to a) Recipes/ Novel ways of using leftovers, b) How to apply the theoretical knowledge of food waste prevention.

Recipes/ Novel ways of using leftovers

The participants during focus group 2 discussed their involvement in the cooking during the intervention. The discussions involved cooking methods and ideas for *using overripe fruit*, like making marmalade or fruitcakes. Also, *novel ways of cooking leftovers* were proposed like egg fried rice to make use of the cooked leftover rice or burritos.

“In the banana bread recipe chocolate was not included, but we added some and it was tasty”. [Participant 3 – Focus group 2]

“Burritos are also a nice idea for using leftover chicken, it is nice for breakfast”.
[Participant 2 – Focus group 2]

How to apply the theoretical knowledge of food waste prevention

The participants’ theoretical knowledge and understanding on food waste prevention was also discussed in focus group 1, but in focus group 2 the focus was on how this have changed after the intervention.

In this focus group the participants discussed the solutions for avoid bulk buys during supermarket trips like *checking of cupboards* and making a *shopping list based on the recipes*. They all agreed that though the quantity of the food seemed not enough after dinner they felt full.

The participant responsible for making salad during the intervention, evaluated himself negatively when he realised that a) he should not have used a whole iceberg and a lettuce, and b) he had created a lot of food waste from the leaves of the lettuce and iceberg.

“The lettuce leaves (leftovers) were a lot, at least we used them to make the egg fried rice”. [Participant 4 – Focus group 2]

During the intervention one participant was not present and had a variety of questions with regards to the skills used for food shopping and cooking which were expressed at focus group 2.

“Did you use a list to go shopping? Did you buy only the groceries necessary or you fell to the temptation of buying extra things?” [Participant 2 – Focus group 2]

The participants answered all his questions which involved *cooking skills* as they explained about the use of leftovers, *the recipes* used for cooking and the *novel food* as they added chocolate in the banana bread recipe which was not included in the ingredients.

Furthermore, during focus group 2 the participants discussed the skills learned during the intervention, like looking at the cupboards before going for shopping and checking the expiration dates on the packaging of the products.

“Yesterday I made a sweet that the recipe indicated a specified type of biscuit to use for the base, however I used those that we had at home and I did not buy those required by the recipe”. [Participant 2 – Focus group 2]

“I did not use to look at the expiration dates on the packaging when shopping, now I do”. [Participant 5 – Focus group 2]

Moreover, the participants reflected on the intervention with positive comments.

“The intervention acted as a catalyst to the information we get from the awareness campaigns and advertisement in the supermarket and the press. When we actively learn it is not only easier, but faster and more informative”. [Participant 3]

“I learned things that I am not going to forget, I will use the food saving skills I gained”. [Participant 4]

Besides that, the participants suggested that one intervention might not be enough and it would be useful to learn more recipes and cooking skills. They explained that what they have done was not new but learning by doing the shopping and cooking while being conscious of the target, which was not to produce food waste, helped them to understand the concept better.

“Learning more recipes and doing more interventions would be useful, we would learn even more”. [Participant 2]

“The skills we gained were not new to us, we had heard of them, but actually performing them helped a lot, theory is different from practice”. [Participant 1]

Discussion

The aim of this project was to investigate whether experiential learning stimulates pro-environmental behaviour for household food waste prevention among young people in Greece, which is associated with SDG 12 Sustainable Consumption (FAO, 2016). The main findings of the study suggest that experiential learning does facilitate pro-environmental behaviour for household food waste prevention. Awareness campaigns and theoretical knowledge about food waste are the foundation of environmental behaviour however, experiential learning stimulates the process of going from theoretical knowledge to practical knowledge.

Method and theory discussion

The theory of planned behaviour (Ajzen, 1985) was used for predicting as well as understanding the participants' attitude towards food waste prevention, which is considered a suitable theory for predicting household food waste behaviour (Visschers et al., 2015). The results of the questionnaire and the focus group indicated that the participants were aware of food waste issue and were willing to learn methods for food waste prevention. The participants agreed that food waste is a very sensitive subject with impacts on the environment and society that needs our attention as it concerns all of us, though research has shown that youth and food waste production are negatively correlated (Grasso, et al., 2019) and youth are considered producing most food waste (Marek-Andrzejewska and Wielicka-Regulska, 2021). The declaration that food waste concerns all of us is perceived as a positive attitude towards food waste reduction, one of the three drivers of intention (fig. 1) (Ajzen, 1985). Another issue raised was that there are people not aware of the problem. This is also mentioned in the International Food Information Council research with the title "Consumer behaviours and perceptions of food waste" (Food Insight, 2019), where it was found that 22% of the people asked never think of food waste when eating at home and 24% do not think of food waste when doing the grocery shopping.

During phase 2 to 4 of this study the subjective norm, the second driver of intention for food waste prevention, was also evaluated which refers to "*the perceived social pressure to perform or not to perform the behaviour*" (Ajzen, 1985, p.188). In the focus groups, being a group activity, all the participants had a positive "attitude towards the behaviour" which in this case is food waste prevention and learning skills for food waste prevention. In this study with this group, the subjective norm played a positive role to the decision of the participants in adopting a pro-environmental behaviour towards household food waste prevention, as there was positive attitude from all the participants towards the goal.

However, in this study it was not possible to investigate whether this positive attitude in adopting pro-environmental behavior towards food waste prevention in the household also were transformed into actual behavior in the long term.

The participants in the study were university students residing with their family, and the university where they study is close to their parents' home. They did not have the

opportunity to be responsible for their food preparation, which can partly explain the lack of cooking skills. In case the participants had some cooking skills they might be able to follow independently the recipe instructions, however they might still experience the same hesitation in calculating portions and other issues analysed in the results discussion section. This might need further investigation with a group with different characteristics.

The participants were acquainted since October 2021 and they are friends, which might have helped in the research as it was easier for them to express their opinion during the focus groups and cooperate better during the intervention. The fact that the participants knew each other gives us a reflection of how this could be applied in a school class where the students know each other. However, if this would be applied in random groups, then it might be useful to add an introductory meeting.

In the first focus group, the participants were asked to watch voluntarily, in their own time, a selection of documentaries “Taste the Waste”, by Thurn Valentin, filmed in 2010, and/ or Wasted! The story of food waste by Chai and Kye filmed in 2017. However, none of them watched these films. The idea was to raise awareness of the extent of the food waste issue and introduce them to the problem of food waste generated by consumers in general and not only household food waste. The “Wasted! The story of food waste (Chai and Kye, 2017) was supposed to provide cooking ideas with leftovers or parts of vegetables we don’t usually cook.

In Greece, cooking is not a lesson that is taught at schools, instead cooking skills are learnt by participating in the family cooking. Traditionally in Greece, home cooking is performed by the mother who is usually sharing her knowledge with the daughter/s. However, this does not mean that male children are prohibited to cook, but this is not the usual model. In this study, at the intervention, there was one female participant and three male participants. Two out of three male participants had experience in cooking. The female participant also mentioned that she helps her mother when she is making sweets. Home economics is a small subject that is taught at the 1st grade of high school, with a very broad curriculum ranging from the environment to family planning also including food, nutrition, and home finances (Apostolopoulos et al., 2013). Food and nutrition refer to healthy eating, and home finances refer to the home budget and the categories of expenses. These two subjects are relevant to food waste prevention. Material and exercises, as those included in the A2UFood training kit (Ioannou et al., 2022) could be

added in this course and be complemented with a similar intervention performed in this project.

The number of participants of the focus group was good, as between 4 – 8 participants is the ideal size for a focus group (Braun and Clarke, 2013). The study included only a limited number of participants and can therefore be seen as a pilot study. This also implies that the findings cannot be extrapolated to the general population. Furthermore, the design did not anticipate a follow up to investigate whether the participants used the practical skills in the long run. Even if they do not practice the skills, the focus groups and the intervention have fulfilled their aim as the participants have gained awareness with regards to household food waste prevention. The materials (i.e. the types of leftovers) were designed specifically for the intervention. As a participant rightly said “...it was like playing a game with marked cards...”, yet, the participants were able to place themselves in an actual situation and make dinner using leftovers. Furthermore, the researcher was also the moderator during the focus groups and the intervention. It is recognised that the positive position towards food waste prevention could have affected the participants’ behaviour, though effort was made to keep a neutral position.

Result discussion

Knowledge and understandings about food waste prevention – How can young people go from food waste theoretical knowledge to food waste prevention?

During the focus groups the participants were given the opportunity to discuss with their peers what is food waste and how they understood the concept of food waste prevention. During the first focus group surfaced the misconceptions and misunderstandings relevant to what is food waste. According to Abeliotis et al. (2016), in their study for identifying the consumer behaviour in Greece related for food waste, Greeks scored well in food storage skills (for meat and cheese), but their score in shopping planning, food portioning and food labelling were poor. The participants in this study identified the food with the higher food waste rate to be fruits, vegetables, milk, bread, and cereals. The reason fruits and vegetables result in food waste, except of decaying faster, was related to personal preferences and the habit of buying in bulk. Bread, milk and cereals was the next group of food that was identified with high food waste which was attributed to bad storage

habits. These reasons were also identified in the study by Abeliotis, Lasaridi, and Chroni, (2014), named “Attitudes and Behaviour of Greek Households Regarding Food Waste Prevention”.

Furthermore, the participants identified that buying too many groceries results to food waste as well, if you buy more than necessary, then the food becomes stale and wasted. However, they tried to make a point that buying too much is not food waste itself, as long as these are consumed. However, this is strongly linked to metabolic food waste a new indicator developed in the study “*Unsustainability of Obesity: Metabolic Food Waste*” by Serafini and Toti, (2016). Metabolic food waste represents the food lost through excessive consumption of food.

As sources of information for food waste prevention the participants mentioned the awareness campaigns like *#allazoumesynithies (we change habits)* (AB Basilopoulos, 2020), the internet, YouTube videos for cooking instructions, however during their discussion when they referred to methods of food waste prevention the dominant source was their parents. Following the habits of the parents without questioning them or combining them with current food waste prevention methods could be one of the reasons for perpetuating the food waste problem. As it has been mentioned before, parents and family play a significant role in consumption habits and environmental behaviour (Grønhøj and Thøgersen, 2012).

In the research by Anton-Peset, Fernandez-Zamudio, and Pina, (2021), in order to promote food waste reduction to primary school children, it was found that addressing the food waste issue has a positive change in children’s attitudes. In this study the discussion that took place during focus group 1 seems to have had positive results as the participants expressed their views on how to tackle food waste. Discussing the subject played a multiple role: a) the participants shared their knowledge with their peers and expressed their views on the different dimensions of the food waste issue, b) informative as through the discussion misunderstandings and misconceptions were clarified, c) raised awareness on the subject and the participants’ personal responsibility and d) exchanged ideas on food waste prevention methods. Furthermore, the intervention allowed the participants to try the theory in practice and think of ways this can be applied as well as the limitations. Teamwork helped to overcome obstacles and stressed both personal

responsibility as well as motivated peers to adopt pro-environmental behaviour for food waste prevention.

How can experiential learning be used as tool for food waste prevention?

The participants displayed to have satisfactory theoretical knowledge and understanding on food waste and identified some of the food waste characteristics as well as challenges, during the discussion in focus group 1, which were addressed during the intervention. The participants worked together for cooking dinner which involved all the procedure, i.e. planning what to cook taking into account the leftovers, finding suitable recipes, shopping taking into account the food labels (use by and expires by dates), food portioning, and cooking which are the characteristics of food waste also identified in the study “*Food Waste Prevention in Athens, Greece: The effect of Family Characteristics*” by Abeliotis, Lasaridi and Chroni, (2016).

First the participants were informed of the leftovers available and found recipes which these could be used. They made a list and went shopping for the rest of the ingredients. While doing the task, they discussed about marketing techniques they had to face in order to avoid buying more groceries than necessary. They learned cooking techniques, cooked a sweet, made a salad and a side dish. All this procedure did not provide new theoretical knowledge but practical knowledge. This type of information was known to them. However, it gave them confidence and reassurance that they can become part of solution. As it is identified by Visschers et al. (2015) skills training can promote pro-environmental behaviour.

The discussions about the subject in itself (phase 1) and also in phase 4, the description of the steps and what has been conducted at the intervention for the participant that were absent during the intervention can be considered a positive result. It might be suggested that for experiential learning to be successful, this social component of working together, talking about your own experiences as well as telling others about the experiences (theoretical and practical) might be important. This can be compared to Kolb’s experiential learning model (Kolb, 2014) as described in the *Theories and models for understanding food waste behaviour* section, where *work* requires interacting with colleagues and/or customers and each person interacts with others while either giving or

receiving information on how to perform a task and includes the social component of working together. But of course - this needs to be further investigated.

How can food waste prevention awareness be turned into pro-environmental behaviour for food waste prevention?

All the participants were aware of the impacts of food waste related to the environment, economy and society. They felt positive on food waste reduction and identified it to be a very important issue. However, during the focus group and the intervention it was apparent that they lacked practical knowledge. The intervention required the knowledge of simple skills like meal planning, food shopping, making a salad. The participants were able to perform the tasks but had difficulty to calculate the quantity they needed when cooking, which part of the lettuce to keep for the salad and how to use the edible parts of a lettuce for making the main course. Cooking too much is one of the causes of food waste (Abeliotis et al, 2016). These were some of the skills that were shown to the participants, during the intervention. As it was identified by Kritikou et al. (2021) and Ioannou et al. (2022), people need help to make sustainable choices, interventions such as informal education can facilitate food waste prevention. To answer the need for help, recently, TV and Social Media celebrity chefs introduce the concept of cooking with leftovers and using “ugly” vegetables in their recipes. Visual motivation was also used in the “A2U Training Kit” that was created by Ioannou et al. (2022) in which flash cards were used for training on food waste prevention methods. These methods focused on how to read the labels correct, how to organise the groceries cupboard etc. However, in this study, through experiential learning, the participants cooked a full meal, using leftovers and generated food waste which consisted mainly of unavoidable food waste like eggshells and vegetable peels. This gave the participants the opportunity to practice in real life situations like doing an apprenticeship in household food waste prevention.

Suggestions for future research

Food waste prevention is a contemporary subject related to responsible production and consumption, Sustainable Development Goal 12.3 (FAO, 2016), where UNEP has as a target to halve food waste produced in retail, household and consumer sector by 2030. Greece has a lot of room for improvement on food waste prevention, and education can

play a significant role. According to the survey of Papamonioudis et al. (2022), Greeks need information on food waste prevention methods, and education plays an important role on food waste awareness. This study has further demonstrated the role of experiential learning for food waste prevention. Therefore, it would be interesting to conduct a similar study in a larger scale research or to integrate this method as part of an awareness campaign. The research design, in case of a large scale research, would need further organising and fine tuning in order to handle effectively the large volume of information and get results. For example, the introductory questionnaire must include demographical data questions, also a good idea is to introduce more specific questions about the participants' awareness on the issue and use the Likert scale for the answers, along with the open question with free text which can work as control. It would also be interesting to revisit the groups in order to evaluate the intervention results in the long-run. Also, as a participant suggested, it would be useful to have more than one intervention in order to achieve better results on shopping, storage, and cooking skills of the participants.

Furthermore, it has been noticed that the literature available on food waste in Greece, is mainly focused on urban environments. Even though the majority of the Greek population lives in Athens and Thessaloniki, it might be useful to investigate the trend in the rural areas in order to compare the differences on the causes of food waste and food waste awareness as well as food waste prevention behaviour.

Conclusion

For food waste prevention to be realised the following conditions need to be met a) awareness on the subject b) awareness of the personal responsibility c) theoretical knowledge, and d) practical knowledge/ cooking skills. Awareness campaigns provide theoretical knowledge, but practical knowledge is essential to reach the goal of food waste prevention. This can be acquired through practice. At the focus groups youths socialise and interact, exchange opinions and discuss the subject. During the intervention they acquire practical skills. Experiential learning can be used as a tool through which to stimulate youths to adopt pro-environmental behaviour for food waste prevention, as it provides all the tools necessary to achieve the target, theoretical awareness of the subject and individual responsibility as well as theoretical and practical knowledge.

References

- '*Love Your Food @ Schools*'. (2017, 04 07). Retrieved from Singapore National Environment Agency: <https://www.nea.gov.sg/media/news/news/index/nea-launches-love-your-food-@-schools-project-to-encourage-youth-to-cherish-and-not-waste-food>
- AB Basilopoulos. (2020). *#allazoumesinithies*. Retrieved from #allazoumesinithies for us and the environment: <https://allazoumesinithies.ab.gr/act/h-desmeysi-mas/food-waste-claims/>
- Abeliotis, K., Lasaridi, K., & Chroni, C. (2014). Attitudes and behaviour of Greek households regarding food waste prevention. *Waste Management and Research*, 32(3), 237 - 240.
- Abeliotis, K., Lasaridi, K., & Chroni, C. (2016). Food Waste Prevention in Athens, Greece: The effect of Family Characteristics. *Waste Management and Research*, 34, 1210 - 1216.
- Abeliotis, K., Lasaridi, K., Boikou, K., & C., C. (2019). Food waste volume and composition in households in Greece. *GNest*, 21(3), 399 - 404. doi:<https://doi.org/10.30955/gnj.003144>
- Abeliotis, K., Lasaridi, K., Boikou, K., & Chroni, C. (2019). Food waste volume and composition in households in Greece. *GlobalNEST*, 399-404.
- Abeliotis, K., Lasaridi, K., Costarelli, V., & Chroni, C. (2015). The implications of food waste generation on climate change: The case of Greece. *Sustainable Production and Consumption*, 3, 8-14. doi:<https://doi.org/10.1016/j.spc.2015.06.006>
- Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behaviour. In J. Kuhl, & B. (. J., *Action Control From Cognition to Behaviour* (pp. 11 -12). Berlin, Heidelberg: Springer Series in Social Psychology. doi:https://doi.org/10.1007/978-3-642-69746-3_2
- Ajzen, I. (1991). The Theory of Planned Behavior. *Organisational Behavior and Human Decision Processes*, 50, 179-211.

- Anton-Peset, A., Fernandez-Zamudio, M.-A., & Pina, T. (2021). Promoting Food Waste Reduction at Primary Schools. A Case Study. *Sustainability, MDPI, 13*(600). doi:doi.org/10.3390/su13020600
- Apostolopoulos, K., Georgitsogianni, E., Kanellou, A., Saiti, A., Sdrali, D., & Tradi, D. (2013). *Home Economics, Gymnasium Grade A*. Athens, Greece: Ellinika Grammata.
- Best ever cook's collection - Chinese*. (1997). LONDON: ANESS PUBLISHING.
- Bioeconomy, J. E. (2020). *Brief on food waste in the European Union*. Italy: EC. Retrieved from https://food.ec.europa.eu/system/files/2021-04/fw_lib_stud-rep-pol_ec-know-cen_bioeconomy_2021.pdf
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 77* - 101.
- Braun, V., & Clarke, V. (2013). *Successful qualitative research, a practical guide for beginners*. Retrieved from Successful qualitative research, a practical guide for beginners - Student Resources: <https://studysites.sagepub.com/braunandclarke/study/chapter.htm>
- Bravi, L., Francioni, B., Murmura, F., & Savelli, E. (2020). Factors affecting household food waste among young consumers and actions to prevent it. A comparison among UK, Spain and Italy. *Resources, Conservation and Recycling, 153*. doi:<https://doi.org/10.1016/j.resconrec.2019.104586>
- Chai, A., & Kye, N. (Directors). (2017). *Wasted! The Story of Food Waste* [Motion Picture].
- Chroni, C., Lasaridi, K., Stylianidis, N., Velonia, K., & Manios, T., Daliakopoulos, I., . . . Drosou, Z. (—A. (2019). The A2UFood Project - Avoidable and Unavoidable Food Wastes: A holistic Managing Approach for Urban Environments. *Proceedings - TERRAenVISION, 30*, p. 89. Barcelona: MDPI. doi:10.3390/proceedings2019030083
- de Leeuw, A., Valois, P., Ajcen, I., & Schmidt, P. (2015). Using the theory of planned behaviour to identify key beliefs underlying pro-environmental behavior in high-school students: Implications for educational interventions. *Journal of*

Environmental Psychology, 128-138.
doi:<https://doi.org/10.1016/j.jenvp.2015.03.005>

Deslauriers, J. L., Rudd, R. D., Westfall-Rudd, D., & Splan, R. K. (2016). The Critical Need for Merging Educational Learning Theories with Experiential Learning Programs in Animal Agriculture: A Literature Review. *NACTA Journal*, 307-312. Retrieved from <https://www.proquest.com/scholarly-journals/critical-need-merging-educational-learning/docview/1850643908/se-2>

do Carmo Stangherlin, I., & Dutra de Barcellos, M. (2018). Drivers and barriers to food waste reduction. *British Food Journal*, 2364-2387. doi:<https://doi.org/10.1108/BFJ-12-2017-0726>

EU Food Loss and Waste Prevention Hub. (n.d.). Retrieved 06 02, 2022, from European Commission Policies, Information and Services: https://ec.europa.eu/food/safety/food_waste/eu-food-loss-waste-prevention-hub/news

Eurostat. (2022). *Food waste and food waste prevention by NACE Rev. 2 activity - tonnes of fresh mass*. Brussels: EU. Retrieved 1 4, 2023, from https://ec.europa.eu/eurostat/databrowser/view/env_wasfw/default/table?lang=en

FAO. (2016). *Food and Agricultural Association*. Retrieved 05 02, 2021, from Sustainable Development Goals - Indicators: <http://www.fao.org/sustainable-development-goals/indicators/1231/en/>

Food and Agriculture Organisation of the United Nations. (2011). *Global food losses and food waste – Extent, causes and prevention*. Rome. Retrieved from <https://www.fao.org/3/i2697e/i2697e.pdf>

Food Insight. (2019, 9 17). Retrieved from Consumer Behaviors & Perceptions of Food Waste: <https://foodinsight.org/consumers-perception-food-waste/>

Gill, P., Steward, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection. *British Dental Journal*, 291-295.

- Graham-Rowe, E., Jessop, C. D., & Sparks, P. (2015). Predicting household food waste reduction using an extended theory of planned behaviour. *Resources, Conservation and Recycling*, 194 - 202.
- Grasso, C. A., Olthof, R. M., A., B. J., van Dooren, C., Liisa Lähteenmäki, L., & Brouwer, A. I. (2019). Socio-Demographic Predictors of Food Waste Behavior in Denmark and Spain. *Sustainability*. doi:<https://doi.org/10.3390/su11123244>
- Grønhøj, A., & Thøgersen, J. (2012). Action speaks louder than words: The effect of personal attitudes and family norms on adolescents' pro-environmental behaviour. *Journal of Economic Psychology*, 292-302.
- Ingram, C. S. (2001). *The complete book of bread and bread machines*. London: Anness Publishing Ltd.
- Ioannou, T., Bazigou, K., 2, K. A., Fotiadis, M., Chroni, C., Manios, T., . . . Lasaridi, K. (2022). *The "A2UFood Training Kit": Participatory Workshops to Minimize Food Loss and Waste*. Basel, Switzerland: MDPI.
- Ioannou, T., Bazigou, K., Katsigianni, A., Fotiadis, M., Chroni, C., Manios, T., . . . Lasaridi, K. (2022). The "AU2Food Training Kit": Participatory Workshops to Minimize Food Loss and Waste". *Sustainability*, 14. doi:10.3390/su14042446
- Kolb, D. A. (1984). *Experiential learning - Experience as The Source of Learning and Development*. New Jersey: Prentice Hall.
- Kolb, D. A. (2014). *Experiential Learning: Experience as the Source of Learning and Development* (Second Edition ed.). Pearson.
- Kritikou, T., Panagiotakos, D., Abeliotis, K., & Lasaridi, K. (2021, 10 16). Investigating the Determinants of Greek Households Food Waste Prevention Behaviour. *Sustainability*, 13(20). doi:10.3390/su132011451
- Lasaridi, K. (2022, 10 14). We waste 40 kilos of food per inhabitant per year. (G. Elafros, Interviewer) Retrieved 10 15, 2022, from <https://www.kathimerini.gr/society/562090771/petame-40-kila-trofima-o-kathenas-etisios-meleti-se-ellinika-noikokyria/?fbclid=IwAR0qGhyI8yWg5zMt0Wx5FZyolPjAdUWIHYY4PTTrAverageKXS8zXWKybtfp0no>

- Marek-Andrzejewska, M. E., & Wielicka-Regulska, A. (2021). Targeting Youths' Intentions to Avoid Food Waste: Segmenting for Better Policymaking. *Agriculture*. doi:<https://doi.org/10.3390/agriculture11040284>
- Maxwell, J. A. (2013). *Qualitative Research Design - An Interactive Approach* (3 edition ed.). California, U.S.A.: Thousand Oaks.
- Onwuegbuzie, A. J., & Leech, N. L. (2006). Validity and Qualitative Research: An Oxymoron? *Quality and Quantity*, 233-249.
- Papamonioudis, K., & Zapaniotou, A. (2022). Exploring Greek Citizens' Circular Thinking on Food Waste Recycling in a Circular Economy—A Survey-Based Investigation. *Energies*. doi:<https://doi.org/10.3390/en15072584>
- Photodentro* . (2013). Retrieved 05 28, 2022, from Photodentro - Greek national aggregator of educational content: <http://photodentro.edu.gr/>
- Roberts, M., & Downing, P. (2022). *UK Household Food Waste tracking survey Winter 2021: Behaviours, attitudes and awareness*. Banbury: WRAP. Retrieved from <https://wrap.org.uk/sites/default/files/2022-03/WRAP-UK-household-food-waste-Winter-2021-Behaviours-attitudes-and-awareness.pdf>
- Serafini, M., & Toti, E. (2016). Unsustainability of Obesity: Metabolic Food Waste. *Frontiers in Nutrition*, 3(40). doi:doi: 10.3389/fnut.2016.00040
- Sumner, J. (2003, 9). Environmental adult education and community sustainability. *New directions for adult and continuing education*, 2003(99), 39 - 45.
- Sustainable Development Goals*. (n.d.). Retrieved from Food and Agriculture Organization of the United Nations: <https://www.fao.org/sustainable-development-goals/overview/en/>
- Technical Platform on the Measurement and Reduction of Food Loss and Waste*. (2023). Retrieved from Food and Agricultural Organisation of the United Nations: <https://www.fao.org/platform-food-loss-waste/food-loss/introduction/en>
- Thurn, V. (Director). (2010). *Taste the Waste* [Motion Picture].

- UN Environment Program. (2021). *Food Waste Index Report 2021*. Nairobi: UNEP. Retrieved from <https://www.unep.org/resources/report/unep-food-waste-index-report-2021>
- UN Environment Programme Civil Society Engagement*. (2023, 1 21). Retrieved from United Nations Environment Programme: <https://www.unep.org/civil-society-engagement/major-groups-modalities/major-group-categories/children-and-youth>
- Visschers, V. H., Wickli, N., & Siegrist, M. (2015). Sorting out food waste behaviour: A survey on the motivators and barriers of self-reported amounts of food waste in households. *Journal of Environmental Psychology*, 66-78.
- Why reducing Food Loss and Waste matters*. (2021, 12 22). Retrieved from Institute of Food Technologists: <https://www.ift.org/news-and-publications/digital-exclusives/why-reducing-food-loss-and-waste-matters>
- WRAP - Food waste trends survey 2021*. (2021, 8). Retrieved from WRAP: <https://wrap.org.uk/resources/report/food-waste-trends-survey-2021>
- Yardley, S., Teunissen, P., & Dornan, T. (2012). Experiential learning: Transforming theory into practice. *Medical Teacher*, 161-164.

APPENDICES

APPENDIX 1

Information letter

You are being invited to participate in a research study titled: Food Waste reduction experiential learning approach – An interaction with Greek youths. This study is being done by Despoina Chioti from the Food and Meal Science Master Program, School of Food and Meal Science at the University of Kristianstad Sweden.

The aim of the project is to use experiential learning for “teaching” pro-environmental behaviour to Greek youths and specifically food waste reduction methods.

The participants will attend three meetings.

In the first meeting we are going to discuss about environmental issues and more specifically about food waste and the implications to the environment and society. After the meeting if you feel like it you can watch one or two documentaries “Taste and waste” by Valentin Thurn (2010) and the “Waste! The Story of food waste” by Anna Chai and Nari Kye (2017),

The second meeting will be a dinner invitation. During this session we are going to cook and the ingredients we are going to use will be leftovers and/or ugly looking vegetables. You are encouraged to bring your own leftovers or ingredients. With these ingredients we will make our dinner. I would like to inform you that this session will last approximately 5 hours as it involves cooking and staying over for dinner.

The last session is going to be a wrap up of the previous two. It is anticipated that it will last for approximately 1 hour.

Please note that the discussions will be recorded for decoding purposes only and at no means will be published.

Your participation is entirely voluntary, and you can withdraw at any time. You are free to omit any question.

The group discussions will be recorded for research analysis purposes only. The answers to the questions that you give are going to be used for research purposes only. At any point that you feel uncomfortable or wish to discontinue your participation you may stop your participation in the research.

APPENDIX 2

Questionnaire

1. What was the motive in participating in the research?
2. Have you attended before, seminars about food waste prevention?
3. Are you doing the shopping in the house?
4. Are you doing the cooking in the house?
5. Do you help in the shopping in the house?

6. Do you help in the cooking in the house?
7. Do you find environmental protection as important? Give a few reasons.
8. Do you think you have access to information about food waste prevention methods?
9. Which means of information are you using to be informed on food waste prevention?
10. Are you aware how much food waste each person in Greece produces per year?
11. Are you aware how much of the total waste is, food waste in Europe?
12. Are you aware how much of the total food waste is produced by households in Europe?
13. Are you aware that there are organisations that accept leftovers and distribute them to people in need?

Thank you for your answers. These topics and more will be discussed in our first meeting.

APPENDIX 3

Food waste hierarchy

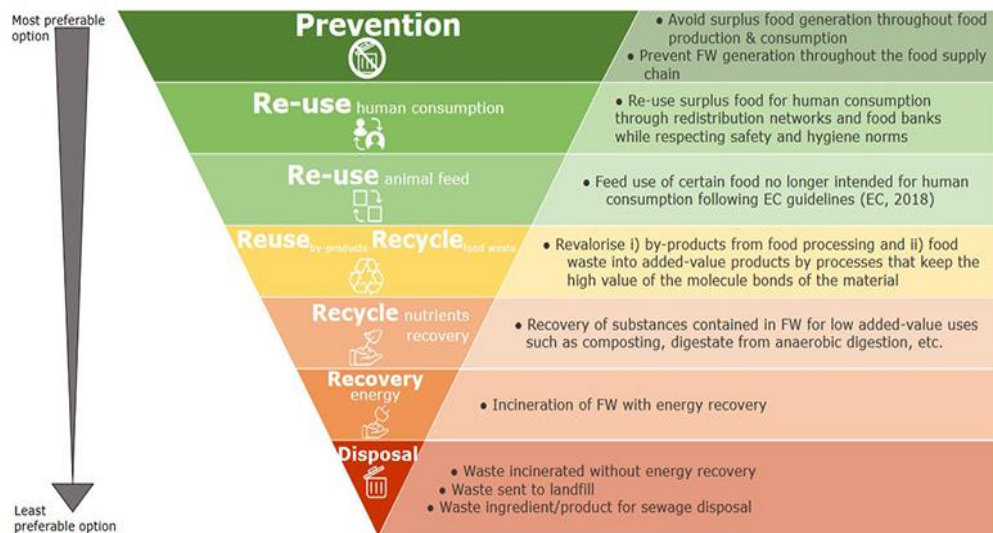


Figure 3 Food waste hierarchy (Brief on Food Waste in the European Union, 2020 (Bioeconomy, 2020)

APPENDIX 4

Recipes

Recipe 1

Banana bread (Ingram, 2001)

100 g butter

175g caster sugar

2 large eggs

200 g self-rising flour

200 g peeled ripe bananas

85 ml buttermilk

2.5 baking powder

5ml grated nutmeg

125 ml sultanas

75 g pecan nuts

40 ml banana or apricot jam

30 ml banana chips

Recipe 2

Egg fried rice (Best ever cook's collection - Chinese, 1997)

3 Eggs

5ml salt

45 ml vegetable oil

450 g cooked rice

2 spring onions

115gr frozen peas

Recipe 3

Salad for 6 persons

Lettuce

Iceberg lettuce

Fresh onion

For the sauce:

Mustard

Oil

Lemon

Mayonnaise

Recipe 3

Garlic Bread

1 Loaf of bread

300gr Yellow cheese of your liking

Garlic 2 cloves finely chopped

50gr Butter

APPENDIX 5

Questions/ Topics of discussion during Focus Group 1

The following are topics I am interested in covering during the 1st session of focus group on Food Waste Prevention.

1. How would you describe pro-environmental behaviour?
2. How do you feel about environmental protection?
3. Are you aware of food waste and the consequences to society and the environment?

4. Which of the following habits are part of your shopping routine?
 - a. Checking pantry,
 - b. Design the weekly menu,
 - c. Shopping grocery with a list
5. How do you store vegetables?
6. How do you store groceries?
 - a. Do you remove them from the super market packaging?
 - b. Do you place plastic bags in the fridge?
 - c. Do you use containers to store cheese and ham etc.?
7. How do you understand the “expires by” date on food items?
8. How do you understand “best before” date on food items?
9. Do you consume food after the expiration date?
10. Do you use your senses (smell, taste) before you consume food or do you only consult the expiration date?
11. Do you store leftovers?
12. Which is/are the staple/s that most often have in your fridge?
13. Have you used leftovers to cook a new recipe? For example, minced meat from Spaghetti Bolognese to make a pie?
14. Give examples/ ideas for the next session, the cooking.

Remind the participants to watch the movie before the cooking.

APPENDIX 6

Questions/ Topics of discussion during Focus Group 2

1. How did you find your experience of leftover cooking?
2. How would you rate the yuk factor?

3. Did you find the food tasty?
4. Do you use any of these practices while cooking?
6. Do you think it is difficult to adopt pro-environmental behaviour in grocery shopping?
6. Do you think you can adopt leftover cooking practices?