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

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Abstract

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. This pilot study aimed to investigate whether experiential learning can stimulate pro-environmental behaviour for household food waste prevention among young people (aged 18-21 years) in Greece. The qualitative research method was used which 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. It was found that 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.

Keywords: Food waste prevention, SDG's, experiential learning

1. 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). 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.

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.

2. Materials and Method

In this study, a combination of methods and approaches have been used 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 can 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).

3. 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.

4. Results discussion

The data from the four different phases were analysed separately using thematic analysis method, as described by Braun and Clark (2006, p.79). The themes identified are summarized in Table 1.

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

Themes	Theme subgroup	Description
Theoretical knowledge of household food waste	Understanding of food waste	Understand what is household food waste, which are the main sources

	concept	of household food waste.
prevention behaviour	Awareness of the food waste impact	Environmental, Social and Economic dimension of food waste
Practical knowledge/ cooking 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 edible leftovers in a creative manner
	How to apply the theoretical knowledge of food waste prevention	How to store food, transport food from the store at home.

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), titled "Attitudes and Behaviour of Greek Households Regarding Food Waste Prevention".

As sources of information for food waste prevention the participants mentioned the awareness campaigns, 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 our 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 in 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.

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 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 D. A., 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. 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.

5. 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.

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