International Journal of Engineering & Technology, 8 (1.2) (2019) 109-112

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper



Level of Knowledge, Apprehension and Readiness of Food Waste Segregation in the Cafeterias

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Abstract

In recent years, increased in food waste generation has affected the environment due to the lack of awareness among consumers. A need for assessment by surveying was performed at UKM Bangi campus to determine the level of knowledge, apprehension, and readiness in food waste segregation aspect in the cafeteria among residents. The survey result will determine whether sustainable cafeteria programme should be implemented to increase awareness. The questionnaire was designed as a tool to collect data from 300 residents in UKM Bangi campus. The collected data was analysed using the Rasch model and Predictive Analytics SoftWare (PASW). Results of the assessment show that most of the residents have more knowledge on hygiene in the cafeteria associated with waste management instead of having concern and willingness to separate food wastes in the cafeteria as a way of managing wastes properly. As a conclusion, sustainable cafeteria programme should be executed to increase the level of readiness and apprehension of residents towards food waste segregation in the cafeteria.

Keywords: *Apprehension; food waste; knowledge; sustainable cafeteria program; waste segregation*

1. Introduction

According to [1], in scientific literature, food wastes are identified as materials for human consumption that are subsequently discharged, lost, degraded or contaminated. A report from [2] shows that the food waste generated by consumers is about 15,000 tons per day. The increase in food waste generation has led to rising greenhouse gas emissions resulting from the food production and consumption, and also from its final disposal in landfill that emits harmful gas emissions [3]. The main factors for the environmental impact due to the increasing food waste generation are the absence of segregation programs, lack of awareness among consumers and their involvement, and also improper collection systems. According to [4] the rate of water pollution is also increasing due to poor management and collection of waste cooking oil and food waste from the cafeterias.

[3,5] suggest that to reduce food waste generation, the issue of undesirable food surplus needs to be addressed to prevent overproduction and oversupply of food. Besides that, in several options, food waste is also available for industrial use such as in the energy production sector, composting and animal feed [1]. Therefore, the disposal management of this type of waste should be done properly due to the benefits of the recycling as well as to reduce the environmental impact. Besides that, food waste should be segregated from the source due to the issue of an increasing amount of waste which is disposed directly into the landfills without any treatment. Source segregation of waste refers to the collection of different waste categories where the waste is sorted at the place where it is generated [6]. According to [7] food waste separation practice cannot be improved just from the written information, but the information must be correctly designed and proper management need to be carried out to spread this information. Therefore, this study was conducted to determine the level of knowledge, apprehension, and readiness towards food waste segregation activities in the cafeteria among residents in UKM Bangi campus.

2. Materials and methods

2.1. Sampling and questionnaire

The study involves a sampling of 300 residents in UKM Bangi Campus comprising of students, administration staff, academic staff and cafeteria staff. In accordance with the number of students, the university staffs constitutes the highest number of respondents which have a total of 174 students, followed by administration staff 44, academic staff 43, and sum of the operators with the cafeteria workers totalling 39. The data was collected randomly using a structured questionnaire. Questions were divided into five main sections as follows;

i. Section A concerns with the socio-demographic data such as sex, age, educational level and employment;
ii. section B concerns with the knowledge of hygiene in the cafeteria;
iii. section C concerns with the aspect of cleanliness in the cafeteria;

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iv. section D deals with the respondents' readiness on food waste segregation; and the last part
v. section E deals with the cafeteria selection factors by respondents.

The questionnaire was designed in precision in order to study the level of knowledge, apprehension, and readiness towards food waste segregation activities and also the factors in choosing the cafeterias among UKM residents.

2.2. Data analysis

The data was analysed using the Rasch model to measure the factors of involvement of the respondents about cleanliness and readiness of food waste segregation. In the Rasch analysis, by using Winsteps software, calibration of the instrument was done. According to [8] in data analysis, the items that do not fit the criteria set will be removed and repeated until the instrument contains all items that fit the following criteria. Results of the Rasch model analysis were compared to the mean values of all the factors from the Predictive Analytics Software (PASW) analysis. The tendency of the respondents to these factors is represented by the average values.

3. Results

3.1 Demographic data

Figure 1-4 show the details the socio-demographic data of the residents. The data shows that majority of the respondents are female (53%). Most of the respondents were in the age group of 20 to 30 (63%). For educational level, respondents that studied until STPM or Matriculation College show the highest number in this survey (29.3%) while those who have studied until Master level (5.3%) show the smallest percentage. The data also shows comparison of the percentage between occupational categories whereby most respondents were students (58%), followed by admin staff (14.7%), academic staff (14.3%) and lastly cafeteria's operator (13%). Other details of the demographic data are shown in the diagrams below:

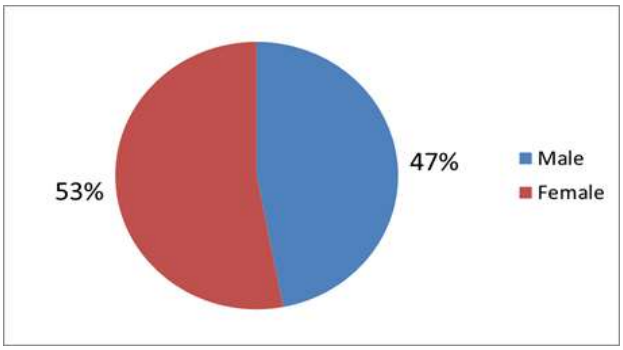


Fig.1: The percentage of respondents by sex

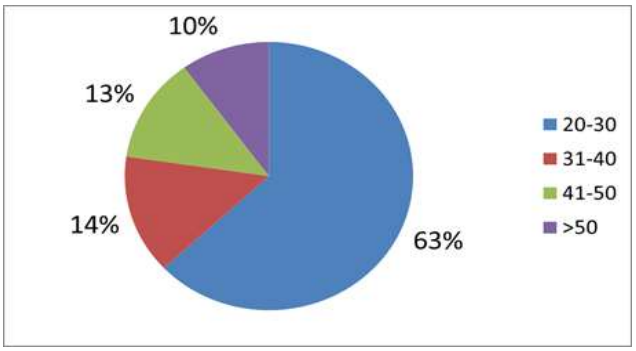


Fig.2: The percentage of respondents by age

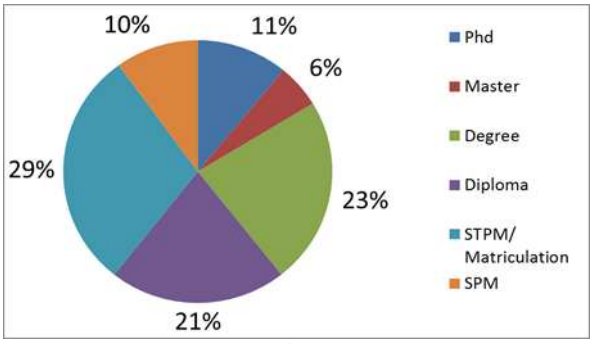


Fig.3: The percentage of respondents by education

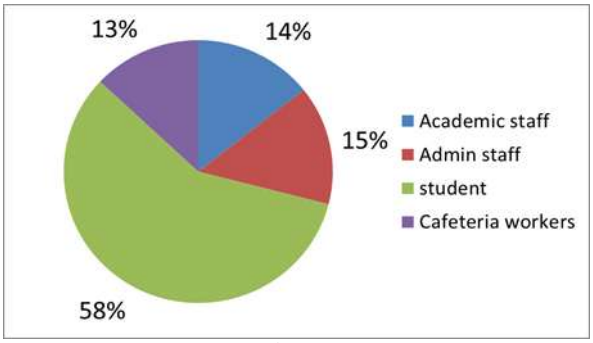


Fig.4: The percentage of respondents by employment

3.2. Rasch model analysis for knowledge, apprehension, readiness and cafeteria selection factors

In the questionnaire that was presented, the researchers chose four awareness factors in achieving the objectives. The four factors are knowledge, apprehension, readiness, and cafeteria selection. Thus, these factors are significant in the cafeteria sustainable planning program.

Figure 5 shows that items that are higher up on the scale have a meaning that there is a lower probability of persons who will agree to these items. Towards the bottom of the scale, there are items that have a higher probability of people agreeing to these items. The conclusion from the Rasch model analysis was displayed in a hierarchy in Figure 6 to show that respondents were most likely to have more knowledge on the hygiene in the cafeteria associated with waste management. In terms of cafeteria selection, the respondents gave priority to the hygiene aspect in the cafeteria than other cafeteria selection factors such as affordable food price, the variety of food served and others. The factor was followed by the level of apprehension of the respondents towards food waste management and the hygiene of a cafeteria. However, it was likely that respondents did not support the idea on separation of food waste by customers in a cafeteria despite the level of knowledge and their concern on cafeteria hygiene and cleanliness. Therefore, the implementation of sustainable cafeteria will stimulate the apprehension and readiness factors toward cafeteria operators and consumers to practice food waste segregation.

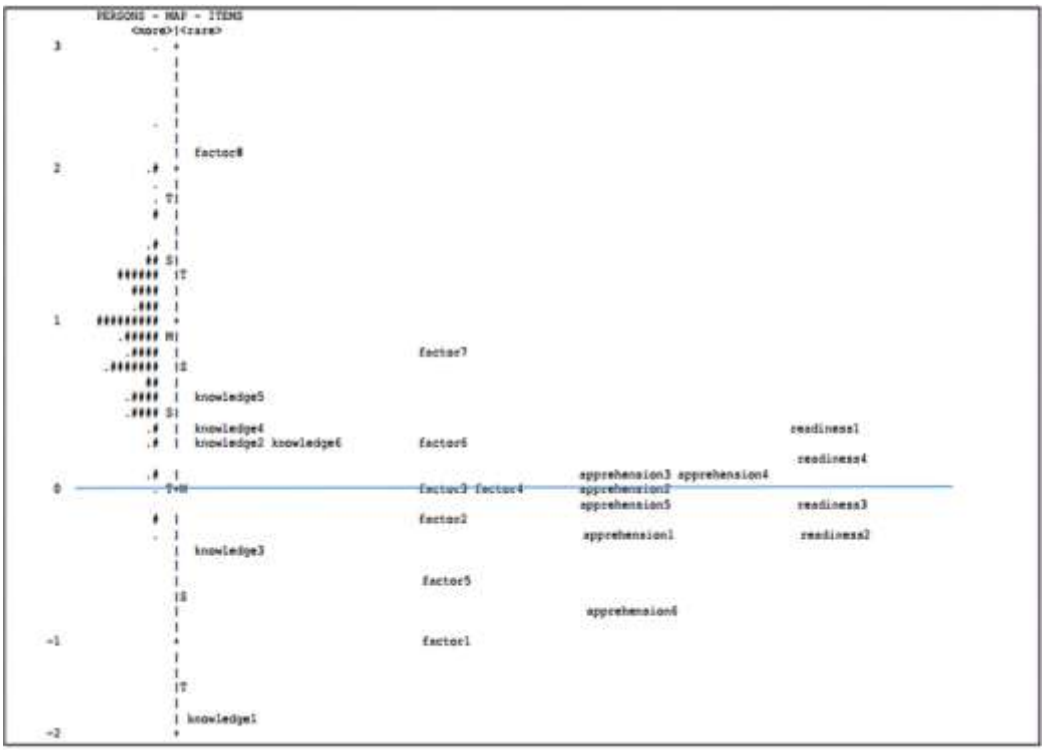


Fig.5: Person map of items

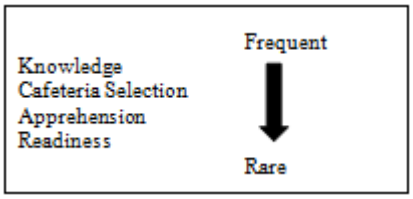


Fig.6: Hierarchy factor on hygiene management and food waste separation

3.3. The analysis of average frequencies values towards knowledge, apprehension, readiness and selection of cafeteria in different employment

The analysis of average frequencies values towards knowledge, apprehension, readiness and selection of cafeteria factors was done by using PASW. Figure 7 shows a comparison of the average frequencies value in different occupational categories for the academic staff, support staff, students and cafeteria operators.

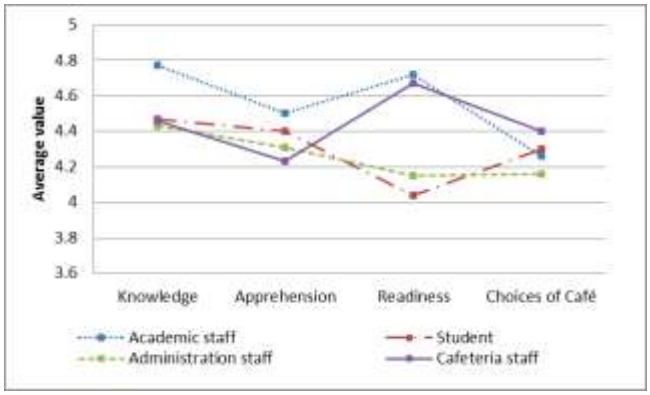


Fig.7: Comparison of average value between 4 categories

Based on Figure 7, in terms of knowledge on hygiene in the cafeteria, the level of knowledge of the academic staff is much higher compared to the other three categories. Besides that, in terms of the separation of food waste readiness by consumers, students were less supportive towards it compared to the academic, administration and cafeteria staff. This is because the students believed that the task of waste separation is not the responsibility of the students but the responsibility of the cafeteria staff. However, the cafeteria staff supported the idea of the separation of food waste by consumers because it would facilitate them in the task of managing the cafeteria better and towards having a cleaner cafeteria. The final factor was the selection of a cafeteria based on a few items such as hygiene, food variety, location and others. Majority of the cafeteria staff supported each of these items including the cleanliness of the cafeteria because each item plays an important role in the good running of a food business.

3. Conclusion

In conclusion, this study reveals that the readiness of consumers to support the food waste segregation activities in cafeterias does not depend on their level of knowledge regarding this issue. This is because most of the residents do not understand well the purpose of separating the food waste and the benefits of this practice. In addition, the lack of awareness also leads individuals to be less concerned towards the environment. Therefore, more awareness campaigns and monitoring on the practice of food waste segregation in the cafeteria should be done continuously. The preparation of related infrastructures also plays an important role in facilitating residents to participate in this waste management activity. Based on this study, further research need to be done in order to implement justified actions regarding food waste segregation to observe whether there are positive changes in the public behaviour and knowledge.

Acknowledgement

The authors would like to express sincerest gratitude to all residents of UKM Bangi campus who were willing to participate in this study and they also wish to express appreciation to UKM for allocating the grant coded AP-2014-019 which facilitates the conduct of this research.

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