

## [OT 12] RECYCLING AWARENESS AMONG UNIVERSITI UTARA MALAYSIA STUDENT

Nur Syafikah Ismail<sup>1</sup> & Hendrik Lamsali<sup>2</sup>

<sup>1-2</sup>*School of Technology Management and Logistics, College of Business, Universiti Utara Malaysia, 06010 UUM Sintok, Kedah*  
*nursyafikah11@gmail.com<sup>1</sup>, hendrik@uum.edu.my<sup>2</sup>*

### ABSTRACT

*Recycling activities is popular as it is crucial to the sustainability of our environment. Recycling awareness among young educated generation especially university students is critical as the flag-bearer of the world in the future. Adequately equipped with knowledge and know-how in many different kind of environmental preservation programs, university students are the least group of people expected not to know much about recycling. Nonetheless, empirical evidences on students' recycling awareness is still very much limited. Hence, this study is carried out to address the aforementioned issue by examining students' recycling awareness and how they manage their recyclables. The study employs quantitative research approach in which the questionnaires are distributed among students. The findings show that the recycling level of awareness among Universiti Utara Malaysia (UUM) is low. It is expected that these findings will be beneficial to the university's authorities to regulate a new recycling campaign. However, it is also noted that the item constructs and number of respondents in this study could be further enlarged in order to magnify its significance.*

**Keywords:** *recycling, awareness, university*

### INTRODUCTION

Recycling is very important within all generations nowadays. People are encouraging to do recycling because there are many benefit that we and our earth can get (Namias, 2013). Recycling involve in keep using the same source or turning use the same material and create them become a new product. These recyclable materials involve basically changing scrap materials which are labeled as recycled waste to local facilities in the designated waste container as material "recycled" to be captured and reused as a material for a new product(Schenker,2014). A recycled product is revived in a raw form that can be used to create new and different products. Not only limited natural resources, but recycling efforts can significantly reduce the additional waste that will not only harm the planet today, but future generations as well. The natural resources of our planet are limited so we have to concern most to conserve, recycle and reuse the materials (Schenker, 2014).

Recycling is good for the environment, in the sense, we are using old and waste products which are of no use and then converting them back to same new products. If you throw your rubbish away, you can be very happy to get rid of it. Then go to the trash, you will never see them again. Unfortunately, this might not be the end. The things we have to go somewhere to throw, usually they go underground in an

incinerator to be burned or demolished in landfills. Discharges can be terribly polluting. You terrible, they smell, they have place, which could be used to better things, and they sometimes create soil pollution and toxic water to kill fish in our rivers and seas (Chris,2016). In this context of recycling, all generations must take part because all people will throw rubbish even it is a tissue. My proposal is only focusing on students in Malaysia. The recycling awareness among university student is very important to reduce the usage of natural resources in our earth.

Normally, student mostly use on paper, plastic, bottles and boxes (Winter, 2015). All this material can be recycling and the student should put them in the recycling place. Unfortunately, the level of awareness among UUM student is still unknown, there is no empirical evidence showing that the level of awareness among UUM students toward recycling is sufficient. Therefore, the aim of this study is to determine the recycling awareness among student in UUM and identify on how student manage their waste in their daily life. Related to the aim, to achieve the objective of this project need to support by the research question that will be answer by the student in UUM which is related to the level awareness about the recycling among student in UUM, waste management of student in their daily life and responsibility of students toward recycling if they need to do the additional effort. The remaining parts of this paper organized as follows: section II literature review of the project topic, section III problem statement related to the topic. The methodology used for this paper is stated in section IV. Results and finding from this project shows in section V and discussion about the finding and implication in section VI, finally conclusion of this project stated in section VII.

## **LITERATURE REVIEW**

On the side of to explore this project it was significant to know the information base on solid waste and waste management in common. Identify and find the information throughout this two topic which includes the definitions on the term and the main idea of the topic. This is because solid waste and waste management have good relation with recycling. Furthermore, in solid waste and waste management have the information about categorizing the different type of waste. Many campaign held in our country such as 3 R's campaign which are reduce, reuse and recycle that can lead to the awareness of recycling among people in Malaysia. Important concept that held all around the country is zero waste. This concept will be the model to the university and to open people eyes on the important of recycling.

From the past project research student prove that they will start recycling if the recycling facilities are accommodating and convenient (Tiew et al.,2013). The facilities that provided by the universities make the student easier to recycle in their daily life. In this chapter, the topic that related to the recycling will be explained more in detail such as 3 R's, solid management, waste management and zero waste.

### **Reduce, Reuse, Recycle (3R)**

The familiar key factors that always in mind that related to the recycling is 3R which is reduce, reuse and recycle (Aadal, 2013). This 3R concept is actually already known by all generations because people or students already have the information about 3R from school because when this concept is applying from school, people will be more understand of the impact toward recycling. The first 'R' is reduce which is we have to

reduce our waste by reuse it and recycle the waste into the new product or functions. We will also provide less energy and resources to control the waste and the pollution will decrease by the landfills also decrease. The second 'R' is reuse which people need to use the material for new function to help in reducing the natural resources. Then, the third 'R' is representing recycle that allow to reuse the materials to make new product. In recycle also have the benefit on people on their economy and political.

### **Benefit from recycling**

Recycling activity is one of the alternative ways to make the waste management in our country manage in the right way. According to Environmental Protection Agency (2016) there are many benefit can get from the recycling such as can reduce the waste that will send to the landfills which is very costly. Then, will conserve our natural resources such as water, minerals and forest. Other than that, recycling can prevent from pollution in reducing the need to collect raw materials and can save energy to do works on finding the raw materials to produce new product. Benefit from recycling will effect for the future generation and can create new job opportunities in recycling and manufacturing factors.

### **Waste management**

Recycling is turn the waste material into new by specific process to reduce the use of raw material in the earth. Safe the world with reduce the use of natural resources will reduce the global warming and give benefit to all. Recycling also can decrease the pollution because it uses less energy. An effective recycling process is beginning with the pace that generate the waste. It is also one of the best thing that people can do to make the environment clean and have good natural life cycle (Mohamed, 2010). In other words, recycling will give more advantage to the economic also because if the municipal waste is reducing by the recycling, it will give the low risk to the dumping site. Dumping site took higher cost to manage it because it will be facing many processes.

## **PROBLEM STATEMENT**

This study will investigate the recycling awareness among student in Universiti Utara Malaysia. The study of recycling awareness come from the major issue which is about the waste disposal. Recycle awareness in Malaysia can be identify with the amount of waste to be recycle by the Malaysian people in day by day. In 2015, the comparison of disposal material in Malaysia and worldwide city which is Malaysia disposes was 1.64kg of waste per day and the average in worldwide city was only 1.2kg which is less than in Malaysia. Other than that, the average per capita generation of solid waste in Malaysia is from 0.5kg to 1.8kg per person per day. This also depending on status of the area. Besides that, in major cities such as Johor Bahru, Kuala Lumpur, Ipoh, George Town, Lang, Kota Bharu, Kuantan, Seremban and Malacca had average per capita generation of solid waste which is 1.7kg per person per day (Ravindran, 2015). So, total disposal waste in Malaysia is high. When the total waste in Malaysia keep increasing and the disposal area also become wider. This will happen because Malaysian was not so take part in 3R which are Reuse, Recycle, and Reduce.

People should take attention on this problem because recycling rate in Malaysia is still set far from the target of 22% by 2020 by the government. Solid Waste Corporation

(SWcorp) CEO Datuk Ab Rahim Md Noor said the current rate is only 10.5% compared to other developed countries that have reached over 40%. At the opening of the "Go Green Selangor in 2015! We start 3R" Program organized by SWcorp here today, said that while many Malaysians the importance of the environment, their action response of the expected level has not been reached. Given what needs to be taken many activities, to ensure that the recycling rate is achieved. He said that the national school competition organized recycling level to students early age the importance of the environment to educate. Besides that, Datuk Ab Rahim Md Noor said that early education on the importance of the environment is a good initiative is to educate students and create a society that activities of 3R practices that reduce, reuse and recycle. The CEO of Solid Waste Corporation said that at present 2065 schools in the country have set up recycling clubs and other guests to do the same and with all these efforts, he hopes they can help the government achieve the 22% recycling for 2020 of being a developed country (Zamani,2015).

Recycling awareness is important to every generation due to the effect on our earth now. Global warming and deforestation issue will increase if everyone does not aware about recycle (Marks, 2016). Young generation should be more concern about this because they use a lot of product that can be recycle such as plastics, paper, boxes, glass and electronic. When young generation does not start to concern about the recycling it will be the problem to the earth in 10-20 years later. The studies about the awareness of young generation is low so the tendency of student to recycle is also low. In this case, recycling awareness among UUM student is unknown. It is very important to investigate about the awareness among the students which will effect to the consumer growth because when the awareness is low, the recycling product will decrease and the disposal area will decrease too.

## **METHODOLOGY**

This study is focused on awareness among UUM students toward recycling and to identify students waste management in their daily life. The sample of 50 students was randomly selected from an estimated total campus population of 20 000 students. This total of sample maybe or may not be accurate to represent all the 20 000 students in UUM due to lack of time and cost. This descriptive study employ quantitative research approach which the questionnaire is distributed among students in UUM by email and social media to make student easy to answer the questionnaire whether they are in the class on out of the campus. The results or data from the answer from the questionnaire will identify the objective of this study which is to determine recycling awareness among UUM student and to identify the waste management of UUM student in their daily life.

The limitations in this study is due to the lack of times and cost the sample to represent all the students in UUM is 50 students which is pick randomly in the campus. All student can answer the questionnaire. According to this, the data and result of this study may not be accurate because of the number of sample is too small but it may accurate because all students in UUM live in the campus and automatically have the same environment about the recycling and waste management compare to another university which almost of their students not live in the campus and have different environment

to study and do daily routine. Data was analyzed by using the program Statistic Package for Social Science (SPSS).

## FINDINGS OF THE STUDY

The table 1 shows the information from the sample of UUM student that answer the questionnaire. There are 30% male and 70% female from 50 students UUM which is more female than male because in UUM the percentage of female students is more than male. Then, there are 84% Malay, 10% Chinese and 6% Indian. COB students are 68%, CAS students are 20% and 12% from COLGIS students. The other information is about age which is 26% is 18-20 years' old, 21-23 years' old is the most which is 70% because student in UUM start study in campus in that range of age. Then, only 4% student is greater than 23 years' old.

**Table 21**  
General information of UUM students from sample

		Frequency	Percentage (%)
Gender	Male	15	30
	Female	35	70
Race	Malay	42	84
	Chinese	5	10
	Indian	3	6
College	COB	34	68
	CAS	10	20
	COLGIS	6	12
Age	18-20	13	26
	21-23	35	70
	Greater than 23	2	4

Table 2 shows the descriptive statistics from the sample which is according to gender, age, race and college and their mean, median, mode, std. deviation, range, minimum and maximum. The value of mean for the gender is 1.68, age is 1.78, race is 1.22 and college is 1.42. then, the median for the gender and age is 2.00 and race and college is 1.00. The value of mode for gender and race is 2 and for race and college is 1. Next, for the range of gender is 0.471, age is 0.507, race is 0.545 and college is 0.702. The minimum value for gender, age, race and college are same which is 1. Lastly, the value of maximum for gender is 2 and for age, race and college is 3.

**Table 22**  
Descriptive statistics

	Gender	Age	Race	College
Mean	1.68	1.78	1.22	1.42
Median	2.00	2.00	1.00	1.00
Mode	2	2	1	1
Std. Deviation	.471	.507	.545	.702
Range	1	2	2	2
Minimum	1	1	1	1
Maximum	2	3	3	3

**Table 23**  
Cross- tabulation

Question		Gender		Race			College		
		Male	Female	Malay	Chinese	Indian	COB	CAS	COLGIS
How many times a month do you recycle your recyclables ?	1 time	14.3%	30.6%	40.8%	2.0%	2.0%	34.7%	4.1%	6.1%
	2 times	14.3%	18.4%	26.5%	4.1%	2.0%	24.5%	4.1%	4.1%
	3 times	2.0%	20.4%	18.4%	4.1%	0.0%	12.2%	8.2%	2.0%
Did you know what 3R stand for?	Reduce, reuse, recycle	28.0%	60.0%	74.0%	10.0%	4.0%	60.0%	18.0%	10.0%
	Recycle, reduce, reuse	2.0%	6.0%	6.0%	0.0%	2.0%	6.0%	0.0%	2.0%
	Reuse, recycle, reduce	2.0%	2.0%	4.0%	0.0%	0.0%	4.0%	0.0%	0.0%
Do you recycle?	Yes	22.0%	36.0%	44.0%	10.0%	4.0%	40.0%	10.0%	8.0%
	No	4.0%	8.0%	10.0%	0.0%	2.0%	10.0%	2.0%	0.0%
	Maybe	6.0%	24.0%	30.0%	0.0%	0.0%	20.0%	6.0%	4.0%
In your observation, how many times (day) in a week is trash in your environment has been overflow?	0.2 times	18.0%	38.0%	52.0%	2.0%	2.0%	40.0%	6.0%	10.0%
	3-5 times	14.0%	24.0%	26.0%	8.0%	4.0%	28.0%	8.0%	2.0%
	6-8 times	0.0%	6.0%	6.0%	0.0%	0.0%	2.0%	4.0%	0.0%
Are you satisfied with waste collection system around you (college, cafeteria & inasis)?	Yes	22.0%	20.0%	32.0%	4.0%	6.0%	26.0%	8.0%	8.0%
	No	8.0%	26.0%	30.0%	4.0%	0.0%	20.0%	10.0%	4.0%
	Maybe	2.0%	22.0%	22.0%	2.0%	0.0%	24.0%	0.0%	0.0%

Table 3 shows that the cross- tabulation table which is contain some of the questions in the questionnaire., in gender section, the highest percentage is female, Malay and college of COB which is 30.6%, 40.8% and 34.7% which they only recycle their recyclable one time a month and the lowest is male 2.0% that recycle their recyclable 3 times a month.

For the second question, the highest also is female, Malay and COB students which is 60.0%, 74.0% and 60.0% also for COB that know about 3R stand for reduce, reuse and recycle. For other question also same as before but the amount or value of the percentage is different according to total of students answer that question followed by the section which is gender, race and college. In overall, the students recycling frequency is low due to the percentage shows in the table. As the data shows, the results show 60% of students in UUM give the positive respond and 40% of the students give the negative respond. Unfortunately, the level of awareness among UUM students toward recycling still poor and university have to indicate more programs and initiative to recover this problem because recycling is the easiest ways to reduce waste in our place.

## **DISCUSSIONS**

Awareness of recycling among student in UUM is determined by quantitative research approach which is questionnaire is distributed to the student to get the response and data. In the first three question, which is how many times a month do you recycle your recyclables? did you know what 3R stand for? and do you recycle? is according to the first objective to determine the awareness among UUM students toward recycle. Next, for the last two questions which in your observation, how many times in a week is trash in your environment has been overflow (count in day)? and are you satisfied with waste collection system around you (college, cafeteria and inasis)? Is according to the second objectives which is to identify the waste management among student in UUM. The data that have been taken and analyzed by SPSS shows the percentage for the questions according to the gender, race and college. We can see that almost female student recycle compare to male students. The highest percentage in question 1 is student only recycle their recyclable one times in a month. So, we can clear that the awareness of recycling among student not in good situation. Then, for the question 2, almost students know about 3R and this will be the good information for them because reduce, reuse, recycle (3R) was not the new information to us. Next, for the third question which is do you recycle? then, the result was almost of the respondent do recycle but some of them do not recycle and some of them also answer maybe they recycle. in this case, we can identify that recycling awareness among certain student is still low. The next question is about the overflow trash. The results show that the overflow of trash happens 0-5 times a day. So, there are a lot of waste form students in UUM. They should reduce the waste by doing recycling. The last questions are about satisfaction waste collection in campus. The total of satisfy and not satisfy student about the waste collection are same. In sum. We ca clear that the awareness among student in UUM toward recycling is still low and the waste management among students also is still low. Students must take this issues seriously and make alternative to recycle the recyclable materials. University should look on this case to make our environment safe and our natural resources save. Other than that, the cost to collect the waste from campus to the landfills is higher and

if the student aware and manage their waste well, university management can use the money for the other goods and services.

## CONCLUSION

In conclusion, from the study and the data collected and analyzed people should be more aware and open eyes on recycle. Everyone especially UUM students should aware about recycling to save earth natural resources for next generation. Students must train their self to have a good attitude on managing their waste and take action on recycle issue seriously. Not only student should aware about this, all generation also must take part in recycling. If everyone alert about this, our country will have the systematic system in managing waste. Dumping area will decrease and the pollution will also decrease. Furthermore, from this study we can know that student will be more participate in recycling if university provide good facilities. So, university management team should take part on this issues and provide facilities for student to make them easy to recycle. Another way is student itself must realize that not only facilities can make recycling easier but attitude from each person also important. Lastly, the awareness among UUM students toward recycling have to be increase in time by time and the waste management of UUM student also need to manage well to get the good benefit from that.

## REFERENCES

- Aadal, H., Harirchian, E., & Golchin Rad, K. (2013, September 13). Implementing 3R Concept in Construction Waste Management at Construction Site. Retrieved November 27, 2016, from [http://www.textroad.com/pdf/JAEBS/J.%20Appl.%20Environ.%20Biol.%20Sci.,%203\(10\)160-166,%202013.pdf](http://www.textroad.com/pdf/JAEBS/J.%20Appl.%20Environ.%20Biol.%20Sci.,%203(10)160-166,%202013.pdf)
- Chris. W (2016). Recycling. Retrieved September 24, 2016, from <http://www.explainthatstuff.com/recycling.html>
- Darlyne. M (2016). Let's make separation of waste part of our life style. Retrieved October 21, 2016, from <http://www.nst.com.my/news/2016/06/151771/lets-make-waste-separation-part-our-lifestyle>
- Environmental Protection Agency (2016). Recycling Basics. Retrieved at 24 November from <https://www.epa.gov/recycle/recycling-basics>
- Marks. J (2016). The 6 Most Pressing Environmental Issues. Retrieved at 19 November, 2016 from <http://inhabitat.com/top-6-environmental-issues-for-earth-day-and-what-you-can-do-to-solve-them/>
- Mohamed. H (2010). Recycling Awareness Among Undergraduate Student Under KAED Environmental Education: A Case Study of KAED's Students Recycling Behavior. Retrieved at 17 November, 2016 from [http://irep.iium.edu.my/4354/1/Recycling\\_paper.pdf](http://irep.iium.edu.my/4354/1/Recycling_paper.pdf)



- Namias.J (2016). The Future of Electronic Waste Recycling in The United States: Obstacles and Domestic Solutions. Retrieved at 19 November, 2016 from [http://www.seas.columbia.edu/earth/wtert/sofos/Namias\\_Thesis\\_07-08-13.pdf](http://www.seas.columbia.edu/earth/wtert/sofos/Namias_Thesis_07-08-13.pdf)
- Ravindran. R. K (2015). Work Together to Recycle. Retrieved September 24, 2016, from <http://www.thestar.com.my/metro/views/2015/04/14/work-together-to-recycle-alarming-statistics-a-wakeup-call-for-better-waste-management/>
- Schenker. A (2014). Why Is Recycling So Important? | Earth's Friends. Retrieved September 24, 2016, from <http://www.earthsfriends.com/why-recycling-important/>
- Tiew, K. G., Watanabe, K., Basri, N. E. A., Zain, S. M., & Basri, H. (2013). Level of Recycling Awareness and Responses to On-campus Recycling Facilities: Case Study-Universiti Kebangsaan Malaysia Students. *Journal of Civil Engineering, Science and Technology*, 4(1), 1-7
- Winter. D (2015). The Violent Afterlife of a Recycled Plastic Bottle. Retrieved November 26, 2016 from <http://www.theatlantic.com/technology/archive/2015/12/what-actually-happens-to-a-recycled-plastic-bottle/418326/>
- Zamani. Z (2015). Malaysia's Recycling Rate is Still Low. Retrieved September 24, 2016, from <http://www.thesundaily.my/news/1391122>