Implementation of 3R among Staff at the Petroleum Management Company

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Keywords: 3R, Waste Management, Environmental Attitudes, Knowledge of 3R, Social Pressure

Abstract: 3R promotes the advantages of the environment, better health for those living in the community, and the re-use of materials. We can experience the advantages of 3R if we start having a sustainability lifestyle by engaging implementation of 3R in our daily life. This study focusses on the implementation of 3R at one of the Petroleum Management Company (PMC) in Malaysia. The objectives were to identify the relationships between environmental attitudes, knowledge of 3R and social pressure towards the implementation of 3R among staff, as well as to examine the most influential factor towards it. The questionnaires were distributed using convenient sampling technique for data collection to 201 respondents from the population of 400 staff. The result shows that all the independent variables are significant and have positive correlation with the dependent variable. The independent variables also contribute 84.9% in explaining the dependent variable and the most influence factor towards the implementation of 3R is environmental attitudes.

1 INTRODUCTION

In this modern era, we are facing with a global environmental crisis such as pollution, global climate change, and waste management problem. This is due to rapid growth of world population especially in urban areas that significantly impact the environmental capacity (Salem, Purwanto, DEA, Henna, Apt and MES, 2015).

Improved living standards, rapid economic growth and industrial development in large cities have an extreme impact on the improvement of waste residue (Salem, Purwanto, DEA, Henna, Apt and MES, 2015). In order to manage waste, 3R is used as the model approach. However, different countries have their own policies based on each country's particular circumstances or political strategies (Sakai, Yoshida, Hirai *et al.,* 2011).

Malaysia government already gazetted the Solid Waste and Public Cleansing Management Act 2007. Furthermore, the implementation of solid waste segregation was effectively enforced on 1 September 2015 by the Ministry of Urban Wellbeing, Housing and Local Government involving the Federal Territories of Kuala Lumpur and Putrajaya, Johor, Malacca, Negeri Sembilan, Pahang, Kedah and Perlis.

However, according to Solid Waste and Public Cleansing Management Corporation "awareness in reducing household waste through recycling is still low among Malaysians", (The Star Online, 2017).

Thus, public knowledge and awareness of 3R should be enhanced from time to time to all Malaysians. Many programs can be done at schools, universities and offices such as seminars, competitions, poster wars and many more.

According to the Sustainability Annual Report of PMC in 2016, the company already provide facilities to the staff to manage their waste such as shredding machine and recycle bin. However, they have thrown away all the papers or cardboards in the general waste bin and printed their work in large amount instead of using e-book or laptop to display the report. These issues happened because of lack of awareness among them. Thus, the staff were not implementing the 3R at their workplace.

Therefore, our aim for this study was to identify the relationship between the influential factors towards the implementation of 3R among staff at PMC and to examine the most influential factor towards it. Based on the literature review, we identified three factors, namely environmental attitudes, knowledge of 3R and social pressure.

Hypothesis:

H₁: There is a significant relationship between environmental attitudes and implementation of 3R.

H₂: There is a significant relationship between knowledge of 3R and implementation of 3R.

H₃: There is a significant relationship between social pressure and implementation of 3R.

2 LITERATURE REVIEW

3R is for Reduce, Reuse and Recycle. Reduce is defined as finding ways to minimize the amount of trash that we throw away (Sakai, Yano, Hirai, Asari et al., 2011) or use less (Kivi, 2011). Whereby reuse is to use something again instead of throwing it away or sending it off to a recycling company; or finding a new use for them (Sakai et al., 2011; Kivi 2011). Reusing helps in situations where it isn't possible to reduce. While recycle is to turn items into new objects instead of throwing them in the trash (Kivi, 2011).

2.1 Environmental Attitudes

An attitude is defined as a condition of mental and nervous readiness, which show the direction, the influence on individual responses to all objects and situations associated with it (Bohner and Wanke, 2014). Consumer decision in buying products is often based on their environmental attitude (Anvar, 2014). The quality of the environment relies on knowledge, attitudes, values and consumer guidelines. Attitude is the clearest explanation of the readiness of consumers to pay for green products (Aini, Laily, Nurizan, Azizah, Zuroni & Norhasmah, 2006).

It is a strong motivation for environmental attitudes as far as the person feels responsible to implement 3R in connection with the nature of conservation-related products. This research suggests that eco-friendly behaviour can be characterized as a moral claim. Users feel morally responsible for protecting the environment and saving the limited natural resources on earth.

However, some researchers found that consumers' green decision purchases are not much related to moral thinking (Tanner and Kast 2003). The government's role in protecting the environment cannot be ignored. The Malaysian government promotes and support the sustainable strategies through social advertising such as establishing 3R campaigns and offering 3R infrastructure for public use, as well as educating and nurturing environmental awareness among Malaysians (Haron, Paim, and Yahaya, 2005). The most significant factor that influence the nature is not public policy, but public knowledge. Many individuals have strong environmental concerns, but they believe that maintaining the environment is a significant duty of the government only (Weng, Chen & Chen, 2015).

Previous research argued that having environmental attitudes can give a motivation to increase appropriate behaviour which can increase a number of personality traits, such as when they are feeling good about 3R activities, they would be willing to gain more by implementing it in their daily life (Barr, 2007).

2.2 Knowledge of 3R

Economic growth is seen slowing into 2020 as prolonged trade tensions and weak tech demand hinder the export-reliant economy. The U.S.-China trade dispute and a downturn in China continue to cloud the outlook. However, Focus Economics panellists forecast the economy will still be growing 4.5% in 2019 and 4.3% in 2020, which is down 0.1 percentage points from last month's forecast (Malaysia Economic Growth, 2019).

With the slowing down of the economy, one would think that Malaysian spending power would go down. However, contradictory to that assumption, consumer spending in Malaysia increased to 203388 MYR Million in the second quarter of 2019 from 198724 MYR Million in the first quarter of 2019. Consumer spending in Malaysia averaged 118793.17 MYR Million from 2005 until 2019, reaching an all-time high of 203718 MYR Million in the third quarter of 2018 ("Malaysia Consumer Spending," n.d.)

With that high consumer spending power, Malaysians are able to fulfil their high level of need for goods and services in the market. It seems that Malaysian consumers are more interested in lifestyle oriented use. According to "Malaysia E-Commerce," (n.d.) these products are the top most purchased categories of products in Malaysia (fashion & beauty, electronics & physical media, food & personal care, furniture & appliances, toys & hobbies/ sports, travelling (including accommodation), digital music and video games). Because of this lifestyle, environmental issues build up every time we advanced in technologies.

In many researches, the importance of knowledge in the process of decision-making and the impact of lack of understanding demonstrate. For example, environmental awareness and behaviour are influenced by values, attitudes and knowledge. In recycling and non-recycling studies, it was concluded that the attitude or motive of the two groups did not differ, but there were significant differences in their

operational knowledge. Thus, the confusion about the 3R process is associated with a lack of knowledge about 3R. Moreover, many studies indicate that awareness usually impacts the environmentally friendly approach, which in turn motivates the behaviour of consumers who are environmentally or socially accountable. Similarly, some studies also conclude that information and knowledge about 3R are both important predictors in the 3R behaviour.

There is a variety of factors that influence the behaviour on environmental consciousness such as environmental knowledge, or the ability of a person to understand and assess the impact of society on ecosystems (Haron, Paim, and Yahaya, 2005). The condition of a person's knowledge about effects of the problem is significant when making a decision (Haron, Paim, and Yahaya, 2005). In particular, individuals generally do not like and tend to prevent circumstances where they have limited information to guide their actions and this is where confusion may rise. This explains why some people may prefer not to implement sustainable practices such as engaging in 3R because they do not know enough about 3R.

Nevertheless, past researchers have warned that although knowledge of 3R is an essential mandatory for environmental action, the extent to which its impact can be challenged because first of all, certain daily environmental support activities such as energy saving or household waste reduction can be achieved as a habit that does not involve environmental understanding (Haron, Paim, and Yahaya, 2005). Secondly, measured environmental knowledge may be irrelevant to environmental action samples. Specifically, some previous researchers discovered knowledge of species and ecological ideas does not influence day-to-day environmental action, while knowledge or abilities associated such as understanding of how to reduce, reuse and recycle environmental behaviour study, has little impact. This is consistent with the findings that conservation behaviours are most predictable by knowledge.

2.3 Social Pressure

Implementation of 3R is a behaviour that requires at least some of the long-term benefits and internationalization of accrued benefits to individuals, their families, their communities and the integrity of the global ecosystem. It will be the justification to include 3R in one's moral principles. 3R implementation is not natural because it requires focus and appreciation for long term planning, but humans evolved to be sensitive to short term survival goals (Ali, & Yusof, 2018).

We propose that people's view has an impact on their connections with the world and with other individuals in shaping their views about environmental issues and their inclination to participate in eco-friendly behaviours (Hopewell, Dvorak and Kosior (2009). In particular, because the benefits derived from eco-friendly behaviour are future-oriented and it is unlikely to directly benefit the person doing the behaviour, it is likely that the basic concepts related to people's perspective on their ability to influence their future outcomes and desires to give benefits to others may affect pro-natural beliefs and behaviours that trigger social pressure to others who witness a person's behaviour. For example, they feel social pressure on global issues and they want to be part of eco-friendly behaviour that can create positive impacts on others and themselves. They would feel pressured because people around them are doing something they normally do not do like in implementing 3R.

It was found that the basic values of orientation that individualism, collectivism, and locus of control are linked to the tendency of the people to engage in 3R (Mccarty, & Shrum, 2001). However, Mccarty & Shrum (2001) do not expect their pressure on direct behaviour but more to influence a more specific psychological construct that is a 3R perspective, which in turn affects behaviour.

Subjective norms (from the theory of planned behavior) is about an individual's perception about the particular behavior, which is influenced by the judgment of significant others (e.g., parents, spouse, friends, teachers). Both Park & Ha (2014) and Ali & Yusof (2018) had found that subjective norms plays a role in influencing the intention to recycle, which means that people would feel pressured to recycle when they are being observed or when they feel there is certain expectation from somebody important to them. This is similar to social pressure. Another study by Tih & Zainol, (2012) also showed that subjective norms had a positive relationship towards recycling intention among households in Malaysia.

On the other hand, research in a wide range of fields has also shown that particular social pressure often suppresses values-behaviour. Two specific social pressure constructs that have been continuously demonstrated in connection with 3R are general pressure on the implementation of 3R application and specific pressure on 3R inconvenience.
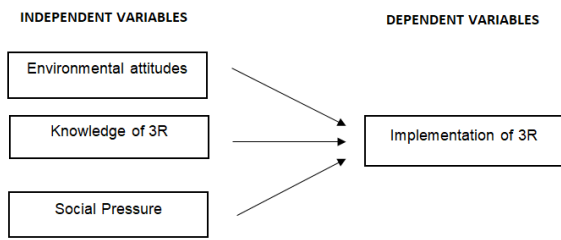
Figure 1: Proposed Conceptual Framework on The Implementation of 3R among Staff at the PMC

3 METHODOLOGY

A set of structured questionnaire was developed in order to achieve the research objectives. Operationalizing the concepts resulted the development of 52 items on a five-point numerical scale ranged from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was divided into five sections; profiles of the respondents, implementation of 3R, environmental attitudes, knowledge of 3R and social pressure. The Statistical Package for Social Science (SPSS) version 23 is used to analyse the data.

3.1 Sampling Technique and Data Collection

The target population was 400 employees of the selected PMC. If the population size is 400, the suggested sample size is 196 (Sakaran, 2006). Since the study executed a convenience sampling technique, the researcher decided to distribute 201 questionnaire and optimist to get at least 196 completed questionnaires. Fortunately, the researchers rigorously managed to personally administer the questionnaires by optimizing the 201 samples.

4 ANALYSIS AND RESULTS

4.1 Reliability analysis

Table 1: Cronbach's Alpha of Variables.

Reliability Statistic for Actual Test		
Variables	Cronbach's Alpha	N. of items
Environmental Attitude	0.893	14
Knowledge of 3R	0.861	11
Social Pressure	0.858	13
Implementation of 3R	0.904	14

Table 1 shows the results of reliability analysis for actual test. The result indicates that environmental attitudes, knowledge of 3R and social pressure had very good strength of associations with the Cronbach's Alpha value of 0.893, 0.861 and 0.858 respectively. Thus the results proved that all items in the questionnaire were reliable for further analysis

4.2 Correlation Analysis

Table 2: Correlation Analysis

Correlation Analysis				
		Environmental attitudes	Knowledge of 3R	Social pressure
Implementation of 3R	Pearson Correlation	0.891	0.875	0.849
	Significant	0.000	0.000	0.000
	N	201	201	201
** Correlation is significant at the 0.01 level (2-tailed)				

Table 2 shows the result of Pearson Correlation. The associations of all independent variables with dependent variable were strong as the r-value for environmental attitude, knowledge of 3R and social pressure were 0.891, 0.875 and 0.849 respectively. As stated by Salkind (2006), correlation between 0.6 and 0.8 are said to be strong. All relationships were significant ($p = 0.000 < 0.05$) at 0.01 significant level.

Thus hypotheses 1 to 3 were supported and objective 1 is achieved.

4.3 Multiple Linear Regression Analysis

Table 3: Model Summary of Multiple Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.921[a]	0.849	0.846	0.29157
a. Predictors: (Constant), MeanSP, MeanK3R, MeanEA				

Refer to Table 3, the adjusted R square was 0.846. The former table indicates that environmental attitude, knowledge of 3R and social pressure explained 84.6% of the variance towards the purchasing performance. The other 15.4% would be explained by unidentified factor(s).

Table 4: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	-.030	.109		-.270	.787
Env. Attitudes	.408	.067	.398	6.105	.000
Knowledge of 3R	.346	.066	.318	5.225	.000
Social Pressure	.247	.052	.254	4.720	.000

Table 4 shows that the three variables namely environmental attitudes, knowledge of 3R and social pressure have the Beta value of 0.398, 0.318, and 0.254 respectively. This result indicates that environmental attitudes have a higher Beta value that provides a strong evidence of being the factor influences the implementation of 3R. Therefore, objective 2 is achieved.

5 CONCLUSIONS AND DISCUSSION

All the objectives and hypotheses were achieved and verified. Based on the result obtained, all the independent variables have strong and significant relationships with the implementation of 3R among staff. However, all the independent variables only explained 84.6% of the variance towards the implementation of 3R. Thus, when we went in-depth for each independent variable, those three variables would significantly contribute to the implementation of 3R with the p-value less than 0.05. Therefore, the most influential factor towards the implementation of 3R among staff at the selected PMC was environmental attitudes with the highest beta value of 0.398.

Since the environmental attitudes contributed the highest value in influencing the implementation of 3R, PMC need to reinforce the readiness of their staff to learn and to execute the 3R at their workplace. Moreover, PMC can enhance the staff responsibility towards 3R by organizing the awareness programs or any other activities that can make 3R be part of their daily life.

Lastly, it is recommended for future research to study on other factors that represent another 15.4% of other variance towards implementation of 3R. In order to increase the generalizability of the findings, future researchers can extend this study to other PMC in other states so that many different points of view will be obtained.

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