International Journal of Engineering & Technology, 7 (3.30) (2018) 458-463

International Journal of Engineering & Technology

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

Research paper

Developing the Roles That Public Relations Play in Supporting 3R Activities by School Teachers in Johor

Shahrul Amir A. Rahim*[1], Mohd Nasir Markom*[2], Syed Agil Alsagoff*[3]

[1, 2] Department of Human Resource Development, Faculty of Management, Universiti Teknologi Malaysia, 81310 Johor Bahru, Johor, Malaysia
[3] Department of Communication, Faculty of Modern Language and Communication, Universiti Putra Malaysia, 40450 Serdang, Selangor, Malaysia
**Corresponding author E-mail: yayajehan@yahoo.com.my ; nash7546@gmail.com , agilsa@hotmail.com*

Abstract

Public relations (PR) practitioners mainly assumes technical and managerial roles in organizations. However, this study reveals that in order to implement the Reduce, Reuse and Recycle (3R) activities, PR practitioners must possess close rapport with the teachers who will ultimately educate the target audiences. Occasionally, these dynamic relationships can derail PR practitioners from carrying out their actual role in promoting public relations. In-depth interviews were conducted at several designated schools to gain insights on how the relationships between PR practitioners and teachers can gauge the effectiveness such a campaign, besides identifying the major challenges in delivering relevant campaign messages. Results show that the relationship is an important element towards ensuring the PR practitioners' success in developing the awareness campaign. These findings have implications in both the theory and practice of public relations, especially when considering the technician versus strategic manager's role of public relations and the advancement of the field to support PR professionalism.

Keywords: *Awareness Campaign; Practitioner; Professionalism; Public relations*

1. Introduction

The main purpose of this study is to explore how public relations (PR) practitioners play their roles in supporting school teachers to deliver environmental awareness or "Reduce, Reuse or Recycle" (3R) messages to the students. Realizing that communicational networking is crucial towards the success of environmental awareness campaigns within schools in Johor, a specific program was conducted with those schools under the Iskandar Malaysia Eco Life Challenge (IMELC 2017).

PR roles are mostly described as technical and managerial by scholars. The concept of different levels of competency in public relations has resulted in varying interpretations as seen from different perspectives. The four major roles are as an expert prescriber, communication facilitator, problem solving process facilitator and communication technician (Viera & Grantham, 2013 and Fawkes, Gregory, Montoya-Martinez & Gutierrez-Garcia, 2017). On the contrary, Dozier (1992) noted that those are inherently a communication manager's role as an expert prescriber, except for the communication technician's role which deals with the technical aspects of public relations work (1).

The discussion covers the issues from multiple perspectives. From the management's viewpoint, PR practitioners fulfills basic human needs by changing awareness of public behaviour and perceptions (2). The practitioner's role enactment is recognized as one of the main areas of theoretical development within public relations is by exploring managerial roles with a particular focus on professionalism. Previous research studied the connection between the managerial role enactment and participation in decision-making. Managerial role competencies in public relations departments are related to its participation in strategic planning (3).

1.1. Research Objectives

The research objectives for developing "The Roles of Public Relations in Supporting 3R Activities by School Teachers" as stated below:

1. To identify PR roles that support school teachers to deliver 3R messages,
2. To explore PR networking with teachers in 3R activities, and
3. To analyse the efficiency of PR strategies in promoting 3R activities in schools.

1.2. Research Problem

The Star Online on 26 August 2016 has reported that Malaysians consumed an average of nine billion plastic bags a year. Consequently the government has launched a campaign to curb unnecessary use of plastic bags by introducing recycling and waste separation regulations nationwide. Various campaigns have previously failed to change people's attitudes and habits to protect the environment. The lackadaisical attitude of Malaysians towards "green" initiatives has resulted in failures despite the millions amount of money spent on awareness campaigns.

A large population of people who resides in the Iskandar Malaysia Region, Johor also generates an increasing quantity of solid waste every year. Its 1.43 million residents are expected to increase further to reach three million in year 2025 *(Iskandar Malaysia 10 years progress report)*. This forced its local authorities to consider waste management alternatives due to the lack of suitable land for sanitary landfills which produce greenhouse gas (GHG) emissions

Copyright © 2018 Authors. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

such as methane and carbon dioxide (4). A specific Solid Waste Management Act 672 was introduced by the Malaysian government under the Ministry of Urban Wellbeing, Housing and Local Government (MHLG) to improve the solid waste management system. This led to the development of a recycling program to inculcate "Reduce, Reuse and Recycle" (3R's) habit, along with other series of awareness campaigns and with the tagline "Think first before you throw". Unfortunately, waste separation for recycling remains uncommon and under practiced by many Malaysians (5).

In 2016, over 31 million of Malaysians were projected to generate more than 25,000 metric tonnes of domestic waste each day. This is inclusive of organic food waste, plastic, paper, aluminium, glass bottles and other recyclables. The federal government targeted about 22% of recycling by the year 2020 (4). Recycling has been made mandatory to the public in order to minimise waste generation in Malaysia. All related parties involved, especially the environmental agencies, play very important roles to educate and raise awareness across the communities. PR practitioners in related agencies or departments are among those who strategize the planning and execution of recycling awareness campaigns. PR roles are to deliver as much information as possible to the target focussed audiences with the aim to gradually improve their recycling habits.

The main goals of public relations are predominantly to create, maintain and protect the organization's reputation, enhance its prestige and present a favourable image. Effective public relations require knowledge, based on analysis and understanding, of all factors that influence public attitudes towards the organization. One of its function is as an important tool in delivering public awareness programs. The establishment of an overall policy with respect to the 3R campaigns in schools involved defining goals and desired outcomes, as well as the constraints under which the campaign will operate so that it will be possible to establish its overall acceptance and success. The schools can play its role as a platform to communicate with nearby communities so as to promote the desired recycling culture.

The discussion of public relations practitioner's role in organizations has indeed determined a variety of functions on how PR plays its function as a decision maker for the public to respond to such an awareness campaign (6). These are some of the important roles that will give a direct impact to audiences, especially on environmentally themed campaigns. There are also the latest issues on PR practitioners' professionalism or competencies in facing a complex and diversified world (7).

Collaborations with environmental organizations, between public and private companies will provide a broader relationship in developing green networking to influence students under recycling policies. These organizations are striving to uphold the equilibrium on environmental issues via sustainable awareness campaigns or activities in school (8). Education is the best medium to spread awareness messages that can change the behavior of students towards environmental issues (9).

Public relations efforts (often called initiatives or campaigns) are communication activities that enhance visibility, sculpt public perception and affect change. These activities create a positive public image for businesses, non-profit organizations and individuals. Public relations have changed, not just in terms of the channels used, but also in the very nature of conversations, purpose, reach and effect. This requires communicators to reconsider a range of issues and topics affecting culture (10). The latest sophisticated communication technologies have changed from traditional to digital media era, and later to find sources from public relations specialists for obtaining valuable information (11). The impact of social media on public relations has now increased tremendously through social and digital media (12).

For instance, communicators have to be more aware than ever that their actual audiences may be far more wide-ranging than their intended audiences. The digital divide means that additional efforts have to be made to include those who might have otherwise been unknowingly excluded. Furthermore, the all-embracing and constantly changing nature of public relations and communication means that it is insufficient for professional communicators to merely maintain a narrow focus on their organizations and cultures, and how they benefit, but to also be aware that communication is altering the very nature of culture and society (13).

2. Literature Review

Public relations will reinforce the public's motivation to study and compare between communications, hence to identify that their involvement in recycling as an essential component. Public relations for recycling will develop strategies to influence audience's behaviour and characteristics by providing proper planning, professionalism, audience preferences, medium and verification. Good publicity and promotion will positively influence households to adopt the recycling behaviour by increasing recycling knowledge and activities. The former is an effective tool to engage or enhance domestic recycling behavior by improving feedback, publicity, promotion or communication strategies (14).

The 3R principle alone is not sufficient to generate beneficial outcomes without proper education, demonstration and encouraging government policies. Public private partnership is more sustainable which must be encouraged and fanned by the government. Such a partnership will inspire personnel training, capacity building and awareness creation in every aspect of sustainable municipal solid waste management. It should be considered that the awareness campaign will increase the overall social impact without compromise. Besides promoting products derived from recyclable materials, a reward and incentive scheme should concurrently be encouraged so as to boost the targeted behavioral change (15).

Recycling education is very important to develop successful recycling communities to understand its value and involvement. It will help students to learn, develop and expand their recycling activities. A special incentive could support a wider environmental education in schools, thus giving a more positive impact towards inculcating conservation of natural resources as well as energy saving initiatives by students. Educating the public about the importance of recycling efficacy and its benefits is critically important to increase the communities' participation and buy in. Among the education program include regular website information updates, visits to recycling and waste facilities, composting, presentations as well as drop-off centers at schools and shopping centers. Other organizations can support recycling programs to provide recycling education *(Recycling In Michigan Successful Recycling Programs, Best Practices And Diversion Potential Final Report, January 2016).*

Academic institutions should enhance their environmental education to instill the anticipated values, behaviour, knowledge, skills and competencies for a sustainable future. Recycling programs will increase their effectiveness and become more important among communities that are aware of the short and long-term efforts to intensify civic education and information strategies (16). Many countries offer recycling education in universities and schools as a mandatory or optional course. The pro-environmental behaviour is a matter of fact influenced when students undergo transitional phases from high-schools to universities (17). A change in attitude, social norms and values can shape natural recycling behavior. In addition, personal beliefs and knowledge will result in stronger attitudes (18).

There are a few strategies to promote recycling such as through door-to-door campaigns, pamphlet distributions, putting up posters, community meetings and events, educational seminars for communities, training packages for elementary and high school teachers, recycling competitions as well as media articles and advertisements. There are also community programs in local schools that aim to collect recyclable refuse from the communities (18).

The study shows that among the mediums of communication is by using social media to promote recycling awareness campaigns. The results show that organizations find it very successful to professionally spread awareness messages. Social media is the best tool for organizations and is apparently one of the most effective mediums for recycling motivation (8). The awareness to protect and preserve the environment has been successfully instilled in the students, making them to be more aware and appreciative about the importance to reduce, reuse and recycle (3R) (9).

The objective of developing sustainable green networking between environmental organizations is to promote public awareness (8). Evolving the functional roles of public relations enables the creation of a distinctive communicational link between those organizations and the schools as it will enhance deeper understanding between PR practitioners and teachers to instill good recycling habits among the students. Environmental communication tools and campaigns could help to overcome awareness problems. Workshops at schools, either curriculum integrated or not, are an excellent tool to disseminate information pertaining to environmental issues towards driving awareness among students to practice recycling actions (16).

There have been several researches on PR practitioners' in distinguishing their roles and identify elements in global PR firms. There is a symbiotic relationship with the environment, society and economy. This study provides meaningful insights into public relations professionalism as well as entrepreneurial sustainability in global markets. PR practitioners seem to be central to organizations especially in decision-making processes.

How could PR practitioners develop the necessary networking with school teachers? It could be an effective way to convey imperative messages to the teachers using "train the trainer" method. Training the teachers will make them cultivate understanding, practical learning and two way communication. Apart from providing latest inputs of knowledge, PR practitioners could also increase promotions on recycling activities to provide a proper guidance to the teachers. Finally, the teachers can impart the newly acquired knowledge to the students through more effective and practical learning methods.

Knowledge can also influence behaviors where people who have more information will have stronger attitudes. The students' willingness to act shall effectively spur multiple new actions and habits. A study also found that middle school students are more responsive towards environmental issues rather than the younger ones. However, they showed dissimilar responses towards the same topics.

Recycling behaviours not only involve attitudes, but also the behaviors of the surrounding people, or normative behaviours. By looking at the neighbours' recycling activities throughout the year, others began to recycle more and more. They acknowledges it to be a normative behavior of their immediate environment. Nonetheless, partial recyclers are able to escape the pressures of normative behavior .

These activities will enhance pro-environmental behavior which can be classified into two categories, direct and indirect environmental actions (19). Direct environmental actions include recycling, driving less, buying organic food etc. which exert a direct impact on the environment. Meanwhile, the latter includes educational outreach and environmental writing which do not have a direct impact on the environment. Environmental education is a process of recognizing value-added skills to respect relationships among human, habitual culture and biophysical surroundings in creating a brighter future for our future generation by promoting environmental awareness campaigns (20).

2.1. Significance of the Research

The most important thing is that this research would generate a greater significance to the future generation towards environmental awareness with the aim to achieve the recycling target by 2020. This can be realized by improving the message delivery tools and PR strategies to actively promote 3R culture to the parents, teachers and students. It is also hoped that the study will equally serve as a reference material for other researchers who are willing to carry out similar research in the future.

2.2. Research Questions

Based on the theoretical background outlined above, the current study sought to answer the following specific research questions:

RQ 1 : What are the PR practitioner's roles that support school teachers to deliver 3R messages?

RQ 2 : How to develop a strong PR networking in 3R activities with teachers?

RQ 3 : What are the factors that influence the efficiency of PR strategies towards promoting 3R activities in schools?

3. Methodology / Materials

To identify the importance of PR roles in environmental awareness campaigns via recycling activities in schools, the qualitative in-depth interview method was applied. This is to identify all relevant PR roles to develop a communication strategy with the teachers that will later influence the perceptions of the students towards 3R education.

In order to address this research gap, this study analyzes 8 in-depth interviews session with teachers to identify and describe the dynamic relationships with PR practitioners, and how those dynamism affect campaign efficiency. Face to face interviews are carried out with urban teachers from Johor Bahru areas. Alternatively, telephone conversations are used for some teachers from rural areas. Each interview session takes an average of thirty minutes. These interviews have a balanced selection of informants who represent rural and urban areas. The information is analyzed to form constructive evidence before all findings are documented.

Interviews with school teachers are used before and after the campaign to elicit information about 3R campaign practices and guidelines to increase 3R culture in schools. To increase the validity of responses, informants are provided with documentation for 3R policies and guidelines. The teachers are asked to elaborate on message dissemination and behavior change towards recycling activities. Some selected teachers are trained in message dissemination and demonstration of proper recycling skills and habits. These trained teachers then convey the targeted messages and demonstrate to their target students. The effect of key behaviors was assessed after three months by interviewing and observing the teachers once again.

As one of the research platform, the Iskandar Malaysia Eco Life Challenge (IMELC) is actually a specific learning activity program on Low Carbon Society (LCS) education at schools as a supplementary learning activity via inter-school competition in Johor. The Program trains the primary teachers to be in-charge of IMELC in their school. The Johor State Education Department (JPNJ), University Teknologi Malaysia (UTM), SWM Environment Sdn Bhd (SWM) and KIKO Network Japan are involved by training the teachers and giving them the relevant knowledge and awareness on LCS and workbook practices designed by UTM to educate the students. The modules of IMELC at the schools by the teachers target a group of students with diverse ethnicity. The workbook includes information on climate change, low carbon society practices, eco-household carbon emission, Science and Mathematics curriculum (STEM education) and also recycling activities.

Meanwhile, the participant involvement in this particular study are eight informants who consist of three male and five female teachers. The study specifically selects four teachers from Johor Bahru city and another four from its outskirt areas. The average age ranges from 28 to 35 years old. They have been in their current position for an average of four to five years, where a majority is coordinators for recycling programs in their respective schools.

Those chosen in this study are classified as educator administrators, senior educators or young educators. The method is to develop a specific approach in the form of a constructive understanding using eight expert-based (in-depth) interviews. Two of the teachers are from pure science background, one from environmental science, two from geography and four from non-science teaching subjects.

The research sampling is significantly different with respect to its environmental awareness level at the pretest stage (control group), whereas at the post test stages, two experimental groups were significantly better than the control group (20). The rationale of using such a method is to explore the teachers' pre and post experiences of the recycling campaign. This will explore how PR personnel contribute their roles by training the teachers to make recycling more attractive or convenient to the students. Besides, it also identifies the teachers' competency level in delivering recycling messages.

3.1. Communications Theory

The Berlo's communications theory emphasizes the importance of Source, Message, Channel and Receiver (SMCR). Human communications of the behavior and mobility of the audience can be influenced by the information that is shared between individuals. Contradictorily, Schramm's theory on mass communication and its effects mentions that the feedback should be examined and influenced by the field of experience (FoE) of the impact of messages (desired or undesired) which act as the communicator's beliefs and experiences. The FoE actually encodes and decodes messages with respect by the individual (21). An argument in communication discussed on sharing the meaning of symbolic exchange mediated by memory, ideology and selective attention.

In this context, we can relate that Berlo's communication theory does reflect the importance of messages (3R awareness) created by the senders (PR practitioners) to the receivers (students) at school. The expert in PR should able to deliver very deep impact messages to audiences. This effective communication will result in students responding to campaign messages, impacting a cognitive effect and transformation into their behavior. Therefore, PR practitioners shall strategize the best usage of medium to ensure their messages will be delivered successfully to the target audience or students.

4. Results and Findings

The first research question seeks to determine how the teachers felt about the "3R train the trainer program" before and after running the recycling campaigns. The second research question focuses on what are the campaign success factors and what are other things that could increase the students' awareness level. This is to explore whether the messages delivered by PR practitioners were really efficient and whether the teachers could encourage their students to implement the anticipated 3R practices. Finally, the third research question aims to find out if the teachers really believed that delivering the 3R campaign is a burden for them.

A female participant (Informant A, 29 years old, rural school, geography background) described that the information in the training had boosted her students' awareness and it had increased tremendously compared to before the introduction of the campaign. Since then, the students have collected a lot of recyclables and had started separating their waste. Previously, they were not too serious about recycling practices. The 3R train the trainer program has provided much input to teachers, especially with more updated recycling facts and how they should activate recycling activities in the school. She has provided input to her students in co- curricular activities as she also teaches a similar topic in her classes.

A male participant (Informant B, 34 years old, rural school, environment background) described that since the schools have recycling facilities, i.e. 3R cages, the practice has gradually became more popular. They did not face any problem on where to send the recyclables. This phenomenon has given a remarkable impact to the school. This 3R facility is a solution for the collection point as the school faced insufficient storage to put all the recyclables beforehand. The only problem is that they have to synchronize the collection schedule with their waste concessionaire operator, SWM Environment, so as to avoid causing an eyesore due to the uncollected materials. SWM Environment, as the company who provides the collection service, plays an important function to maintain the pace of the recycling program with the school.

Another male participant (Informant C, 37 years old, urban school, art background) shared some views on the success of the recycling campaign. The most critical part of 3R campaigns is that they are dependent on the students; whether they are really committed to follow such practices or not. The Parent Teacher Association (PTA), with external organizational support, was also important in making the 3R campaigns successful. What parents need to do is just to give some moral support, and the teachers can guide the students further to motivate them to recycle constantly. Recently, his school has introduced a scheme where those who return any empty drink cans or bottles to the canteen will get back their RM.0.20 deposit. These sorts of activities have attracted some of the students to return their empty containers. However, some of the students were not bothered at all, as they them came from a higher income background.

Next, a female participant (Informant D, 29 years old, urban school, art background) described that 3R campaigns need the teachers' endless effort to ensure that recycling effort meets the objectives. They are not only teaching environmentally related subjects, but also promote recycling habits to the students. She admitted that teachers must have better knowledge and efforts to drive the students to follow and maintain such recycling practices. Although she was not originally from an environmental or science background, the 3R information is very central to update the students. It was a very practical and enjoyable activity for everyone involved.

A female participant (Informant E, 33 years old, rural school, art background) suggested having more 3R competitions so that more students will participate in the campaigns. The competitions, either at the state level or national level, can be a motivation booster for the students. During the IMELC competition, her school managed to save on its electricity bill, water usage and usage of recycle papers. At the initial stage, she has zero knowledge in recycling because she has to replace a previous coordinator who has shifted to another school. Thankfully, she has slowly gained good experience and started introducing recycling competitions between her classes. She constantly communicate with external parties such as by inviting relevant government agencies and SWM Environment to come over and share their latest 3R knowledge.

Next is a female participant (Informant F, 30 years old, rural school, science background). Her awareness level has increased each year. The issues on the perception between solid waste and recycling have now resolved. However, to her, glass bottles still lack potential buyers in this country. On the public awareness issue, students' awareness has increased due to her school regulations. Teachers understand the priority of the campaign, need more frequent train the trainer program and site visits from external organizations (audit processes) to ensure that school fulfills the necessary requirement.

A female participant (Informant G, 30 years old, rural school, geography background) responded that before the campaigns, her students did not really understand the purpose of such activities, but after a briefing from SWM Environment, they appreciated their priceless environment more and practice segregating wastes from its sources. The students were also encouraged to make their own handicraft made from recyclables. As a result, now lots of potentials are being polished and groomed for better recognition and acknowledgement. One of the activities is the formation of a drum group performance using reused materials. The students are

very happy with their activities and have received a lot of live performance invitations.

A male participant (Informant H, 28 years old, urban school, art background) claimed that he personally did not have any idea on what 3R activities were all about. Thankfully, soon after the campaign started, it has slowly changed and now there are lots of improvements. He can see students starting to separate food wastes and recyclables at the canteen, as well as in their own classrooms in which they have made their own creative recycling bins using reused paper. There are other related activities such as planting trees and composting food wastes. The Recycling Club has their 3R projects or other environmental activities that they carry out every Wednesday on their co-curricular day.

Recycling campaigns has improved the understanding and appreciation of recycling in the IMELC program. They provide benefits to the people, school, society and the environment overall. The results have proven that the communication strategy campaigns are very effective in promoting the positive intentions to instill behavioural changes among the targeted students towards a recycling culture. The PR roles depict technical and managerial functions, as well as another important role as an influencer. In other words, this study supports previous studies that stressed on the increase of knowledge. Concurrently, the importance and conscientiousness to recycling initiatives among children will also increase, along with a more determined intention to recycle in the future.

During the State Education Department briefings to teachers, they were given plenty of information on recycling and low carbon society. Road tour campaigns were held to cascade more information and details about the activities via exhibitions, talks and demonstration activities. Promotional campaigns e.g. social media communications, banners and buntings were also given to the participating schools. Recycling facilities e.g. recycle cages have been distributed at school for collection of recyclables.

People with positive attitudes towards recycling understand the choice in discarding their unwanted items; if there are no supporting facilities they will be more likely to trash the items instead. The success of recycling practices not only depends on their awareness level; in fact 3R creates a special networking between PR practitioners and the teachers. 3R is only a platform to give a good impact. The effectiveness of the campaign can be measured from its collection of recyclables and what had been done during the whole schooling period. There is value in training trainers (teachers, leisure time monitors and university volunteers) who subsequently carry out workshops on recycling that are mainly aimed at school children. Other similar experiences have proved to be very positive in order to promote actions that involve the environment (16).

The evaluation on teachers' competencies, students' characteristics and the availability of facilities and infrastructure is among the top priorities to ensure validity of studies. The main point of evaluation is planning and implementing the use of evaluation instruments in the learning activities by teachers (22). Teachers' competencies is part of the problem being analyzed in the study. Some teachers with environmental and science background should not have difficulties to deliver recycling messages in schools because they are well versed with various environmental issues. Unfortunately, some teachers might need more time to understand the scenario before gaining confidence to instill 3R awareness in their students. Among the reasons cited are that they are merely replacing other teachers due to the high mobility of teachers such as replacing teachers for short courses, going on maternity leave, attending seminars or undertaking further studies.

The unavailability of recycling facilities are among the supporting factors listed as one of the main reasons for not recycling, thus the local authorities should provide more of those facilities (23). In this IMELC program, recycling facilities were provided to the most active school so as to motivate them to recycle. Collection was done on a phone call basis as the program ran from January until November 2017. Both parties involved, SWM and the schools, have developed means of communication using email and telephone conversation. Personal communication is done on a weekly basis or upon request.

Below are the collection data for the whole recycling period of the IMELC program:

Table 1: Details of data collected from the school project for recycling

Data description	Recycling	Carbon Reduction (1kg = 2.87kg CO2)*
No. of School submitted	128	
Total weight sold by participating schools	168,509.91 kg	483,623.44kg CO2
Total income reported	RM59,759.57	
Average weight per school per month	1,316.48kg	3,778.31kg CO2
Average income per school per month	RM466.87	
Projection to all 346 schools (weight per year)	455,503.35 kg	1,307,294.62kgCO2

Source: IMELC Report 2017

The data shows that only 128 from the total of 346 schools in the Iskandar Region had recorded recycling activities with SWM. Some schools had earlier engaged other vendors which are not included in the data (not compulsory to select any particular vendor). Nevertheless, the total collection actually accumulates to the total figure. This result gave a new perspective that 3R is a very potential activity by the schools to preserve our environment.

4.1. Developing Pr Roles towards 3R Recycli Campaigns in Schools

Overall findings show a new dimension of PR roles in environmental awareness campaigns by using the 4Cs principle concept of Communication, Contents, Connection and Co-operation. Communication is crucial in developing awareness campaigns, not only about what are the mediums used, but also the effectiveness of the communication tools. Contents refer to the PR guidance in developing the awareness programs, including the train the trainer (3T), 3R module and 3R facilities. Connection refers to the external and internal parties involving supporting agencies and Parent Teacher Associations (PTAs). Cooperation refers to the target audience, either the community's or students' support. This is very important to ensure a synchronized effort in organizing recycling awareness campaigns.

5. Conclusion

The importance of this study to other researchers is that it will give a better understanding on how to influence a target audience towards recycling awareness campaigns. The research findings will be able to give current and different viewpoints regarding the significance of public relations strategies in disseminating information to create effective 3R awareness campaigns in schools. The PR practitioners not only act out the technician and managerial roles, but also assume a playmaker role in 3R campaigns. This research will benefit those who are involved in PR and researchers who explore PR activities to enhance public awareness on an environmental issue. As for future research, a study on the impact of using social media for similar awareness campaigns should be enlightening.

It is found that a well-designed communication campaign and an effective marketing strategy are the key to achieve success in recycling programs. Recycling information may not be effective without a clear understanding of the stage at which the information should be provided. Previous projects have adopted and introduced specific recycling information, particularly before and after the introduction of recycling schemes, while information was

often disseminated prior to the scheme to create curiosity and awareness (14).

5.1. Study Limitations

Despite its important issue, the study is limited only to eight selected secondary schools in Johor from both urban and rural areas. The study is restricted to those schools as it only covers the Iskandar regional area which lies within the IMELC program where the SWM Environment, Johor State Education Department, UTM and IRDA jointly act as collaborative partners.

5.2. Future Studies

In order to execute a thoroughly successful recycling campaign program, more research is required to explore and delineate the teachers' efficiency in promoting and communicating recycling awareness messages in schools.

Acknowledgement

A special thanks and appreciation to Dr Mohd. Nasir Markom (UTM), Dr Syed Agil Alsagoff (UPM) and all staff from Corporate Communications Johor, SWM in supporting this research.

References

[1] Thurlow (2018). Global Capabilities in Public Relations. *Public Relations Journal ;* Vol. 11 Issue 3 (February 2018); © 2018 Institute for Public Relations

[2] Alison Theaker (2015). What Is Public Relations? Chapter 1, *The Public Relations Handbook, Fifth edition*, Routledge Taylor and Francis Group, London UK & NY

[3] Christian Fieseler et.al, (2015). An inquiry into the transformation of the PR roles' concept; *Corporate Communications And International Journal*; Emerald Inside, DOI: 10.1108/CCIJ-02-2014-0013

[4] Zaipul Anwar Zainu (2017). Policies, Challenges And Strategies For Municipal Waste Management In Malaysia. *JOSTIP;* Vol. 3 No. 1 (June 2017)

[5] Yiing Chiee Moh (2017). Solid waste management transformation and future challenges of source separation and recycling practice in Malaysia. *Resources, Conservation and Recycling*; 116 (2017) 1-14

[6] Ji Yeon Jeong et.al. (2017). Core Elements for Organizational Sustainability in Global Markets: Korean Public Relations Practitioners' Perceptions of Their Job Roles, *Sustainability;* 2017, *9*(9), 1646

[7] Dustin Manley (2017). Laying the foundation for a global body of knowledge in public relations and communications management. *Public Relations Review;* 43 (2017) 56–70

[8] Rabiatu Baba Shehu (2018). Green Networking: A Way to Increase Recycling Awareness. *Environmental Management and Sustainable Development;* ISSN 2164-7682, 2018, Vol. 7. no 2

[9] Zanaton H. Iksan et.al. (2017). Modul 3R : Penyebaran Kesedaran Alam Sekitar Di Sabah Dan Sarawak. *AJTLHE*; Vol. 9, No. 1, June 2017, 20 -32

[10] Jim Macnamara (2017). Revisiting the disciplinary home of evaluation: New perspectives to inform PR evaluation standards. *Research Journal of the Institute for Public Relations;* Vol. 3, No. 2 (February 2017)

[11] Elina Erzikova et.al. (2018), Media Catching: A Conceptual Framework for Understanding Strategic Mediatization in Public Relations? *International Journal of Strategic Communication*; ISSN: DOI: 10.1080/1553118X.2018.1424713

[12] Donald K. Wright (2017). Tracking How Social and Other Digital Media are Being Used in Public Relations Practice: A Twelve-Year Study. *Public Relations Journal;* Vol. 11, Issue 1 (June 2017) © 2017 Institute for Public Relations

[13] Web article WPRF 2016, Editorial for Special Section on World Public Relations Forum Conference 'Communication Across Cultures' by Professor Anne Gregory (University of Huddersfield, UK) and Dr Amy Thurlow (Mount Saint Vincent University, Canada) Communication Across Cultures, Public Relations Review 43 (2017) 1–3 Contents,http://dx.doi.org/10.1016/j.pubrev.2016.11.001 0363-8111/© 2016 Published by Elsevier

[14] Adekunle Oke (2016). The Importance of Specific Recycling Information in Designing a Waste Management Scheme, *Recycling (*2016); MDPI, 1, 271–285; DOI:10.3390/recycling1020271

[15] Hope O. Iyamu (2017). Socio-technical systems analysis of waste to energy from municipal solid waste in developing economies: A case for Nigeria, *Renew. Energy Environ. Sustain*.; 2, 21 (2017); DOI: 10.1051/rees/2017027

[16] Pilar Buil (2017). The Involvement of Future Generations in the Circular Economy Paradigm: An Empirical Analysis on Aluminium Packaging Recycling in Spain. *Sustainability*; 2017, 9, 2345; DOI:10.3390/su9122345

[17] Widiaswati Dewi (2017), Pro-Environmental Behavior in Daily Practice, E3S Web of Conferences 31, 09025 (2018) ICENIS 2017

[18] Flanagan, Sara (2017) "How Can Education Improve The Recycling Behaviors And Attitudes Of Middle School Students" School of Education Student Capstone Theses and Dissertations. 4322. http://digitalcommons.hamline.edu/hse_all/4322

[19] Dian R. Sawitri (2015). Pro-Environmental Behavior from a Social Cognitive Theory Perspective. *International Conference on Tropical and Coastal Region Eco-Development 2014* (ICTCRED 2014)

[20] Auwalu Rabiu Ali (2015). Environmental Awareness Level amongst Secondary School Students in Terengganu, Malaysia Based on Different Variables. *International Journal of Education and Research*; Vol. 3 No. 3 March 2015Anne Gregory et.al. (2016). *Editorial for Special Section on World Public Relations Forum Conference 'Communication Across Cultures; WPRF* (2016). Research colloquium call for papers. Available at http://www.worldprforum.com/until 29th May 2016

[21] Kurtulus Kullu et.al (2017). ACMICS: An Agent Communication Model For Interacting Crowd Simulation. *Cross Mark, Auton Agent Multi-Agent Syst*; (2017) 31:1403–1423 DOI 10.1007/s10458-017-9366-8

[22] Marina Ramadani (2016). Validity of Evaluation Instrument on the Implementation of Performance Assessment to Measure Science Process Skills. *Jurnal Inovasi Pendidikan IPA*; 3 (2), 2017 - 181

[23] Nora Farina Mohd. Halim (2018). Awareness and willingness among the residents in Johor Bahru City Council and Johor Bahru Tengah Municipal Council of Iskandar Malaysia-Im (Wpi@Sjer) towards recycling, *MATEC Web of Conferences*; 150, 05078 (2018)

[24] Innocent A. Jereme et.al (2015). Assessing Problems And Prospects of Solid Waste Management In Malaysia. *e-Bangi Journal of Social Science And Humanities*; Vol. 10, No. 2 (2015) 070-087, ISSN: 1823-884x