Effects of Demographics, Environmental Knowledge, and Consumer Motivation on High School Students' Pro-Environmental Consumer Behavior

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The effects of demographic factors such as age, gender, grade level, school type, environmental knowledge, and consumer motivation on students' pro-environmental consumer behavior (PECB) were surveyed by administering a Likert-scale questionnaire to 269 public high school students and 173 private high school students. This correlational study believed that several factors can be accounted for students to behave pro-environmentally as consumers. This is related to the understanding that consumer concerns about environmental issues do not easily translate to pro-environmental behaviors. Pro-environmental consumer behavior pertains to the individual's environmental consciousness in the stages of the buying process to help build conditions that are not harmful to the environment. The findings of this study showed that demographics, age, and school type were differentiating factors in students' pro-environmental consumer behavior. It also found out that environmental knowledge and consumer motivation had weak positive correlation to students' pro-environmental consumer behavior, with the latter having a higher *r*-value. These findings may suggest new research ideas focused on high school students as consumers and can help teachers develop instructional materials and school programs that will enhance their students' environmental knowledge. The findings can also help in the study of the other barriers, and factors to further help encourage students to behave as pro-environmental consumers.

Keywords: *consumer motivation, environmental knowledge, pro-environmental consumer behavior*

Introduction

Environmental problems have increased in the recent decades. Hence, there is a growing concern about finding ways to solve them. Since there is a rapid increase in population, it can be said that the population today is consuming more goods and is taking advantage of more services than the previous generations for the past years. A report on promoting sustainable consumption from OECD (Organization for Economic Cooperation and Development) in 2008 suggests that consumer lifestyles need to change and include ways of choosing and using products and services. All sectors in society are key players in the protection of the natural environment. The role of the economic sector is identified through consumers who make everyday decisions, which can either promote or hinder solutions to environmental problems. These consumers include high school students.

Consumers are faced with more choices than ever. The choices that they make can be tougher, especially with the option of being pro-environmental in their consumption practices. According to Mcintosh (2009), consumers feel that they contribute to environmen-tal problems, and that they can create solutions with their own actions. However, these feelings, thoughts, and perceptions do not readily manifest into concrete actions. Consumers may be concerned about the environment, but they may not act on this concern with a sense of commitment Therefore, there is a need to continue to probe into the factors that hinder pro-environmental behaviors of consumers.

The study focused on the effects of demographic factors, environmental knowledge, and consumer motivation on students' pro-environmental consumer behavior. Specifically, this sought answers to:

1. How does high school students' pro-environmental consumer behavior differ as a function of age, gender, grade level, and school type?
2. Is there a significant relationship between environmental knowledge and high school students' pro-environmental consumer behavior?
3. Is there a significant relationship between consumer motivation and high school students' pro-environmental consumer behavior?

Environmental Knowledge

Environmental knowledge is general knowledge of facts, concepts, and relationships concerning the natural environment and its major components (Fryxell & Lo, 2003). However, it is difficult for individual consumers to deduce the environmental consequences of their behaviors. Therefore, knowledge about the environment might represent an important factor in pro-environmental behavior. If individuals, for example, are unaware of the environmental degradation caused by a certain action, they are not likely to have a negative attitude toward this action (Fransson & Garling, as cited in Kollmuss & Agyeman, 2002).

Early models of pro-environmental behaviors assumed that environmental knowledge linearly influenced environmental concern and attitudes and that, in turn, led to pro-environmental action (Kollmuss & Agyeman, 2002). Following this assumption, it is fitting to provide people with information about environmental problems to motivate them to adopt pro-environmental behaviors. Accordingly, people who attempt to promote pro-environmental behavior often believe that behavior changes are merely a function of knowledge (Kaiser & Fuhrer, 2003).

Any person who wants to behave in an environmentally-friendly manner wants to know if a behavioral sacrifice is worthwhile. Someone who acts rationally wants to assess the ratio between personal costs, such as effort, and ecological benefits. If a person wants to change his/her behavior in a more ecological direction or acquire an ecological behavior, he/she must always choose between different behavioral alternatives. Thus, a rational person's need for knowledge as to the

relative conservation effectiveness of the behavioral alternatives becomes a necessity (Kaiser & Fuhrer, 2003).

Moreover, according to Kaiser and Fuhrer (2003), increasing knowledge alone is, presumably, not sufficient. Even when different forms of knowledge have already been acquired, knowledge is successful in its endeavor only when different knowledge forms promote ecological behavior jointly and convergently. Knowledge converges towards a common ecological goal. When knowledge converges towards a common ecological goal, it promotes ecological behavior more significantly than any exclusive form of knowledge alone. It is not the amount of knowledge available that determines ecological behavior, but the strength of the convergence of different forms of knowledge.

Vicente-Molina, Fernandez-Sainz, and Izagirre-Olaizola (2013) synthesized several studies which stated that younger generations will be affected by environmental problems arising from present actions, so they need to be provided with accurate environmental knowledge and skills to develop sustainable solutions. Accordingly, lack of knowledge or information was found to be an important barrier to acting pro-environmentally.

Environmental knowledge and pro-environmental attitudes are highly interconnected. Knowledge is recognized in consumer research as a characteristic that influences all phases in the decision process. According to Alba and Hutchinsan (as cited in Vicente-Molina, 2013), knowledge is a relevant and significant construct that affects how consumers gather and organize information. This includes information that is being used in decision making (Brucks, as cited in Vicente-Molina, 2013).

People who have greater knowledge of environmental problems are more prone to behave in a pro-environmental way (Oguz & Kavas, 2010), while those who have a deficiency of knowledge or contradictory information, might have limited pro-environmental behavior. It has been suggested that a lack of appropriate knowledge or an excess of self-perceived knowledge might impel individuals to make environmentally wrong decisions. Thus, if such individuals are more aware of environmental problems and their causes, they will become more motivated to act towards the environment in more responsible ways (Barber et al., as cited in Vicente-Molina, 2013).

D'Souza, Taghian and Lamb (2006) stated that environmental knowledge evolves in two forms: (1) consumer education on the impact of a product to the environment; and (2) consumer knowledge of the product itself being produced in an environmentally friendly way. If the consumer has knowledge about environmental issues, then his/her awareness level will increase and thus will, potentially, promote favorable attitudes towards green products.

Consumer motivation

Self-beliefs of efficacy play a key role in the self-regulation of motivation. Most human motivation is cognitively generated. People form beliefs about what they can do. They anticipate likely outcomes of prospective actions. They set goals for themselves and plan courses of action designed to realize valued futures (Bandura, 1994).

Environmentally-friendly behavior is managed as a multi-dimensional concept. This complex approach results in a more stable construct of antecedents of environmentally friendly behavior than a one-dimensional purchase-oriented view. As Perreau (2013) pointed out, the purchase is only the visible part of a more complex decision process created by the consumer for each buying decision he/she makes. She further stated that motivation is the expression of a need which became pressing enough to lead the consumer to want to satisfy it.

Most green consumers perform only what they interpret as their fair share of the things that they know and come to think of as environmental-friendly behaviors that can be done. Green consumers need information, but information can be confusing, and this can either demotivate or serve as an excuse (Moisander, 2007).

Environmental behavior can be different from other types of consumer behaviors in terms of the underlying motivations (McCarty & Shrum, 2001).

Pro-environmental Consumer Behavior

People can choose to adopt behaviors that are comparatively better for the environment. They can start doing a new pro-environmental behavior to reduce their environmental impact, but most of them do not do as much as they can (Osbaldiston and Schott, 2011).

Environmentally-responsible buying can be considered as a specific type of socially conscious behavior (Anderson & Cunningham, 1972) because the behavior (e.g., buying and consuming green products) reflects a conscious concern for the environmental consequences related to the consumption of certain products or services. Consumers who consider the ecological consequences (including people and nature) of their private consumptions are more favorable toward the environment and the use of green products compared to the others who do not care about them.

Generally, the purchase of a product or service is driven by an assessment of the benefits that increase directly and immediately to the individual or household, relative to the assessment of costs. Unlike most consumer behaviors, however, the benefits that increase from environmental behavior are future-oriented and are unlikely to belong only to the person performing the behavior. The behavior even often requires additional sacrifices. Therefore, it is likely that basic value orientations consumers hold with respect to interactions with others will influence environmentally conscious behaviors (McCarty & Shrum, 2001).

Pro-environmental consumers often find it difficult to decide what the right thing to do. They need not only knowledge, but also skills that can support their want to help the environment (Moisander, 2007). Creating a framework to evaluate these pro-environmental behaviors is complex, and determining motivators to be environmentally-friendly can be a difficult process. It is therefore necessary to determine what drives consumers to develop a positive purchasing behavior, and, at the same time, not undermine the act to help the environment (Kollmuss & Agyeman 2002).

People have to recognize that some consumption practices can pose a threat to the environment. Students, being citizens of the future, have to learn that individual consumer behavior can make a difference and can have an impact on the state of the environment. Therefore, it is important to determine the factors that affect pro-environmental consumer behavior. These impacting factors also need to be enhanced.

Methodology

The study was designed to investigate the effects of demographic factors, environmental knowledge, and consumer motivation on pro-environmental consumer behavior of high school students.

Sample

Four hundred forty-two (442) high school students in Grades 8 to 11 from two schools in Quezon City were involved in this study. Two hundred sixty-nine (269) of them came from a public school and one hundred seventy three (173) students came from a private school.

High school students are usually within the age range of 13 to 16 years old. In the study, however, the youngest respondent was aged 12 and the oldest was aged 17. Most of the respondents were 14 years old, which made up 31.2% of the sample. This was followed by 16-year-old students, which comprised 21.5%. The rest of the students were 15 and 13 years old, making up 20.8% and 18.1% of the total number, respectively.

Males and females were almost equally represented in the sample. There were 223 (50.5%) female respondents and 219 (49.5%) male respondents representing the total sample.

Most of the respondents were from Grade 8. The second largest number of respondents came from Grade 10. The third largest was Grade 11. The public school had three sections for all the grade levels. In the private school, however, there were three sections for Grades 8 and 9, two sections for Grade 10, and only one section for Grade 11. Table 1 shows the frequency distribution of students by grade level and type of school attended.

Table 1
Distribution of Students by School Type and Grade Level

Type of School	Grade Level				Total
	8	9	10	11	
Public	88	59	57	65	269
Private	55	57	42	19	173
Total	143	116	99	84	442

There were more students from the public school than the private school. The largest number of respondents per grade level came from Grade 8 of the public school and the smallest number of respondents came from the Grade 11 of the private school.

Instruments

Data came from the responses in the researcher-made Likert-scale questionnaires for environmental knowledge, consumer motivation, and pro-environmental consumer behavior.

Environmental Knowledge Scale. The modified Environmental Knowledge Scale is a 10-item Likert scale. It has four statements adapted from Ahmad, Juhdi, and Awadz (2010) and three open-ended questions at the end of the survey. There are four possible responses, namely: "Strongly Agree", "Agree", "Disagree" and "Strongly Disagree" with the number of points 4 to 1, respectively. A higher score for this scale means the students have more knowledge about the environment.

Consumer Motivation Scale. The modified Consumer Motivation Scale is a 10-item Likert - type questionnaire. It has one statement adapted from Grimmer, Kilburn, and Miles (2015) and an open-ended question at the end of the survey. This scale is intended to determine what encourages consumers to be pro-environmental when buying products. There are four choices: "Very Possible", "Possible", "Somewhat Possible" and "Impossible" with the number of points 4 to 1, respectively. A higher score indicates that there are greater possibilities for the students to act as pro-environmental consumers.

Pro-environmental Consumer Behavior Scale. The modified Pro-environmental Consumer Behavior (PECB) instrument is a 14-item researcher -made Likert–type questionnaire with an open-ended question at the end of the survey. This scale is intended to measure pro-environmental behavior of a consumer. There are four options to choose from: "Always", "Most of the Time", "Sometimes" and "Never" with the number of points 4 to 1, respectively. A higher score indicates that as consumers, students behave in a pro-environmental manner more frequently.

The instruments were validated by experts in the field of Science and were pilot tested to students from Grades 7 to 9 in a public high school. The Cronbach's alpha values obtained for the Environmental Knowledge Scale, the Consumer Motivation Scale, and the Pro-environmental Consumer Behavior Scale after the pilot test are .757, .700, and .755 respectively, which are in the threshold of .7 and above. These values mean that the instruments are acceptable as the items are most likely measuring the same construct. Factor analysis was also done to determine the validity of the pre-determined components of the questionnaires. The collected data were subjected to appropriate statistical analysis.

Results and Discussion

The increasing awareness of environmental issues has led to many new developments in consumer goods. The environmental concerns of consumers have been factored into regular marketing. Thus, it is useful to explore how consumers make choices regarding their buying behavior (D'Souza et al., 2006). Environmentally-friendly substitutes in many product categories are becoming common in commercial outlets at an unparalleled rate (Mcintosh, 2009). In addition, young people such as high school students, need to be recognized as future consumers in researches.

Demographic Factors and Pro-Environmental Consumer Behavior

There was no significant difference in Pro-Environmental Consumer Behavior (PECB) as a function of age. While limited to high school students, the result of the current study differs from the perspective of Roszkowska-Holysz (2013) on consumer purchasing behavior which underlines how age affects the role of the buyers and their purchasing practice. With increasing age, the size and the structure of the consumption change.

In terms of the age of respondents, there was only a slight difference; thus, the students may be considered as belonging to the same age group and consequently the same structure of consumption. According to a Canadian global consumer trend report on age demographics in 2012, this age group has a limited amount of money. This means that they have limited purchasing power. This age group also belongs to the same stage of consumer socialization. Consumer socialization is the process whereby young people acquire the skills, knowledge, and attitudes relevant to their function as consumers in the market place (Ward, 1974). Further testing was done with the participants ages 12 and 13 clustered into one group against age 16, another group. Table 2 shows independent samples t-test results of these age group for PECB scale.

Table 2
Independent Samples t-test of Age Group

		Levene's Test for Equality of Variances		**t-test for Equality of Means**				
		F	Sig.	T	df	Sig. (1-tailed)	Mean Diff	SE Diff
PECB	Equal variances assumed	1.248	.265	2.274	183	.012*	.180	.079
	Equal variances not assumed			2.280	182.824	.012*	.180	.079

There was a significant difference for pro-environmental consumer behavior, with the younger group of ages 12 and 13 (M = 2.61, SD = .51, N = 90) scoring higher than age 16 (M = 2.41, SD = .558, N = 95), t (183) = 2.27, p=.012, one-tailed at an alpha level of .05. This result suggests that the younger group of ages 12 and 13 behaved as pro-environmental consumers more frequently than the older group of age 16. This may be due to the current lessons in their grade level where the Science subject is anchored in the branch of Earth Science or Integrated Science. The topics for this grade level include more processes and cycles in the environment than the higher levels. Although older students have taken these lessons, younger students can remember or recall recent lessons better.

The PECB of male students did not differ significantly from the PECB of female students. There was no significant difference for PECB as a function of grade level. However, when grade level was tested as a

factor against all other variables, results show that there was a significant difference for consumer motivation as a function of grade level. Table 3 shows the result of one-way ANOVA with grade level as factor.

Table 3
One-way ANOVA with Grade Level as Factor

		Sum of Squares	df	Mean Square	F	Sig.
Pro-environmental consumer behavior	Between Groups	3.819	3	1.273	1.257	.144
	Within Groups	443.550	438	1.013		
	Total	447.370	441			
Consumer Motivation	Between Groups	1.979	3	.660	3.208	.011*
	Within Groups	90.055	438	.206		
	Total	92.034	441			
Environmental Knowledge	Between Groups	.424	3	.141	1.507	.106
	Within Groups	41.029	438	.094		
	Total	41.452	441			

There was a significant effect of grade level on consumer motivation of students at $p<.05$ for the three conditions [$F(3, 438)=3.21$, $p=0.11$].

Since there was a significant difference with grade level for consumer motivation, a Tukey HSD post hoc test was carried out to determine which pairs caused the significant difference of consumer motivation with respect to grade level. Table 4 shows the descriptive statistics for consumer motivation in all grade levels. Post hoc comparisons using the Tukey HSD test indicated that the mean score of Grade 8 students ($M=3.150$, $SD=0.392$) was significantly different from the Grade 9 students ($M=2.979$, $SD=0.514$). No other significant results were found among other grade levels after multiple comparison.

Table 4
Descriptive Statistics for Consumer Motivation Scale

Grade level	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
8	143	3.150	.3929	.0329	3.085	3.215	2.0	4.0
9	116	2.979	.5149	.0478	2.884	3.074	1.6	4.0
10	99	3.110	.4110	.0413	3.028	3.192	2.1	4.0
11	84	3.088	.5041	.0550	2.979	3.197	1.4	4.0
Total	442	3.084	.4568	.0217	3.042	3.127	1.4	4.0

According to Littledyke (as cited in Yuksel et al., 2015), grade level is a common variable studied with regards to people's perceptions and reasoning about environmental issues. But, unlike gender, a consistency can be observed among research findings presenting an explanatory effect of grade level on concerns and reasoning toward environmental issues. Yuksel (2015) stated that there is an evolving trend in which students in higher grades are concerned with wider issues regarding the environment. This is because they are more able to perceive themselves in relation to the environment around them. This may also be a reason for the significant difference of PECB between age groups 12 and 13 and 16. Pro-environmental consumer behavior may be viewed as a relatively more specific environmental

concept. Students in higher grades may look beyond this since they regard environmental issues in a more general sense.

The results of the current study reveal that only consumer motivation showed significant difference as a function of grade level. Specifically, grade levels 8 and 9 showed the significantly different mean scores after a multiple comparison on all grade levels. Grade 9 had the lowest mean score which means that the students in this grade level indicated the lowest degree of possibility for behaving in a pro-environmental manner as consumers. On the other hand, Grade 8 students scored the highest which, again, may be attributed to the topics they have just taken up which was Earth Science or Integrated Science in Grade 7 and Biology in their current grade level. This coincides with the findings on age regrouping that the younger group of ages 12 and 13 was expressing greater possibilities to act on what motivates them to be pro-environmental when buying products than the older group of age 16. If students are more motivated then it may follow that they have a greater chance of acting more pro-environmentally as consumers.

There was a significant difference as a function of school type for pro-environmental consumer behavior. Table 5 shows that students from the public school (M = 3.61, SD = .659, N = 269) scored higher than the students from the private school (M = 3.15, SD = 1.34, N = 173), t (440) = 4.815, p < 0.001, one-tailed.

Table 5
Independent Samples t-test for Type of School

		Levene's Test for Equality of Variances		**t-test for Equality of Means**				
		F	Sig.	T	df	Sig. (one-tailed)	Mean Diff	SE Diff
Pro-environmental consumer behavior	Equal variances assumed	37.33	.000	4.815	440	.000*	.4612	.0958
	Equal variances not assumed			4.214	226.354	.000*	.4612	.1095

This suggests that the students from the public school behaved as pro-environmental consumers more frequently than the students from the private school. Economic factors can be considered as one of the differences in the public and private schools. According to Kollmuss and Agyeman (2002), economic factors have a strong influence on people's decisions and behaviors. Two of the pre-determined components of PECB are reusability and recycling, which may have been the reason for the significant difference based on school type. These two components imply not buying something new and just making do with what they have, a situation that may be truer for public school students than private high school students.

Environmental Knowledge and PECB

Table 6 shows the correlation between pro-environmental consumer behavior and environmental knowledge of high school students.

Table 6
Correlation of PECB and Environmental Knowledge

		Pro-environmental consumer behavior	Environmental Knowledge
Pro-environmental consumer behavior	Pearson Correlation	1	.158**
	Sig. (2-tailed)		.001
	N	417	417
Environmental Knowledge	Pearson Correlation	.158**	1
	Sig. (2-tailed)	.001	
	N	417	442

**. Correlation is significant at the .01 level (2-tailed).

Results of the Pearson correlation indicate that there was a weak positive correlation between PECB and environmental knowledge, r=0.158, N=442, p=0.001. The specific item in the Environmental Knowledge Scale with the highest correlation to PECB is "Natural resources should be conserved for the use of future generations." PECB is a future-oriented behavior and unlikely to belong only to the person performing the behavior. This means that the more the students act in a pro-environmental way as consumers, the more they think about other people and the future generations.

As Larsson and Luczynski (2012) mentioned in their study, the greater the consumer's perceived knowledge and awareness of environmental issues is, the more likely they are to act upon it due to an increased understanding of the situation. Blackwell, Miniard, and Engel (as cited in Larsson & Luczynski, 2012) implied that the more information or knowledge is presented to the consumers, the more their opinions about that specific matter will change up to a specific point where they decide to act upon it.

Tan (2011) stated that environmental knowledge is a factor that drives green conscious behavior. He also believed that people will engage in more pro-environmental behavior if they are educated about environmental issues. However, the observed evidence for this relationship is not clear, as the relationship between environmental knowledge and behavior is far more complex (Chan, as cited in Tan, 2011). Furthermore, Tobler (2011) stated that even if consumers are aware of their environmental impacts, they may be unwilling to change their behaviors because of the costs or inconveniences involved. Thus, knowledge about environmental issues appears to be a necessary yet an insufficient prerequisite for pro-environmental behavior, as cited in the study of Bamberg and Moser in 2007 and Kaiser and Fuhrer in 2003.

In this study, the correlation of environmental knowledge and pro-environmental consumer behavior among high school respondents is not that strong. It is supported by previous studies which pointed out that it is difficult for individual consumers to discern the environmental consequences of their behaviors. People who attempt to promote pro-environmental behavior such as politicians and/or environmental activists often believe that behavior changes are merely a function of knowledge (Kaiser & Fuhrer, 2003). Larsson & Luczynski (2012) said that the lack of environmental knowledge is one of the most cited barriers to personal engagement in protecting the environment. But there is also another perception that

consumers may be confused by the large amounts of environmental information that are available (Kaiser & Fuhrer, 2003).

Most educational interventions rely on knowledge transfer, as knowledge is a necessary pre-condition for a person's behavior (Frick, Kaiser & Wilson, as cited in Tan, 2011). Consumer knowledge about environmental issues has been identified as a significant predictor of environmental-friendly behavior (Vining & Ebreo, as cited in Tan, 2011).

Consumer Motivation and PECB

Table 7 shows the correlation between pro-environmental consumer behavior and consumer motivation of high school students.

Table 7
Correlation of PECB and Consumer Motivation

		Pro-environmental Consumer Behavior	Consumer Motivation
Pro-environmental consumer behavior	Pearson Correlation		.322**
	Sig. (2-tailed)		.000
	N	417	417
Consumer Motivation	Pearson Correlation	.322**	1
	Sig. (2-tailed)	.000	
	N	417	442

**. Correlation is significant at the .01 level (2-tailed).

Results of the Pearson correlation indicate that there was a moderate positive correlation between PECB and consumer motivation, r=0.322, N=442, p<0.001. The specific item in the Consumer Motivation Scale with the highest correlation to PECB was "If most of my friends buy environmentally-friendly products, then I will also do the same." This suggests that high school students were mostly motivated by the action of their peers as compared with other factors. Since the respondents are students, they spend more time in school rather than with their family or relatives. It may also be assumed that most of their friends are from the same school they go to.

According to Anvari et al. (2014), consumers who are concerned with the environment will buy green goods. They further stated that most of the consumers are already aware of the effect of their purchasing behavior to the environment. Therefore, aside from the environmental knowledge, high school students and their friends must be acting with awareness to behave as pro-environmental consumers.

Tan and Lau (2011) supposed that studies have shown that consumers need to be empowered or to be convinced that their effort in performing any pro-environmental behavior will minimize environment deterioration. Manufacturing companies need to deliver messages that are explicitly effective to motivate pro-environmental behavior to convince people to believe that when they buy environmentally-friendly products, they can make a difference in minimizing environmental deterioration (Tan, 2011). Therefore, this empowerment of high school students can come from peers and advertising or promotional tools. This must also target this age group to increase PECB.

The consumer motivation questionnaire in this study has an open-ended question which states: "*List any other activity, feeling or belief that might convince you to be an environmentally-friendly buyer or consumer*." Some of the common answers of the students are the following:

- the feeling that the product is useful or effective
- knowing that the product is of good quality and durable
- the belief that products have an attractive design or packaging
- the activity of having a promotional campaign
- promotional activities that involve the government

Although these answers represent only a summary of the responses of roughly 20% of the students, these suggest that they were aware of what could drive them to become pro-environmental consumers. They cited examples, not only for the kind of products that they want to buy, but also noted influential people who should be involved, like celebrities and government officials. Some students recognized that apart from their peers, other people can also influence them to perform PECB.

Anvari (2014), mentioned that customers who have been influenced by a specific group will buy environmentally-friendly products, and that one of the important motivators of environmentally responsible conduct is the social norms. Hoyer and MacInnis (as cited in Anvari, 2014) claimed that "the strength of normative influence of the consumers' family and social groups on purchasing decision making depends on the characteristics of the product, the vulnerability of the individual consumer, and the intimidating power of the group to which the consumer belongs to". Researchers and marketers can therefore work on normative reference groups and comparative reference groups, such as parents, co-workers, teachers, and peers who provide the individuals or students with norms, values, and attitudes through direct interaction, which are parts of normative reference groups (Rao & Childers, as cited in Anvari, 2014).

Conclusions

After the statistical analyses, findings reveal that age is a differentiating factor in students' pro-environmental consumer behavior when comparing ages 12 and 13 altogether against age 16. In this regard, Science teachers may review the curriculum from Grade 9 onwards to investigate the reason behind the decrease in PECB. Teachers and administrators have to encourage the continuous practice of reducing, reusing, and recycling. The type of school is also a significant factor on students' PECB. School administrators have to implement policies and initiate school programs and campaigns to promote PECB especially to private school students. These policies and school programs must involve all school personnel since students are also influenced to act pro-environmentally by people other than their peers.

Grade level and gender, however, have no significant effect on students' PECB; though, there was a significant difference in consumer motivation for Grade 8 and Grade 9 students. Probing deeply into what motivates students, especially from these grade levels accordingly can help increase the chance of turning these motivations into pro-environmental consumer behaviors. Further comparisons of different grade levels may be helpful to understand the factors underlying the differences in consumer motivation.

Pro-environmental consumer behavior has weak positive correlation with environmental knowledge and consumer motivation. These findings can provide direction for teachers in designing teaching materials that can enhance their students' environmental knowledge to positively influence pro-environmental actions. Teachers can emphasize topics about environmental issues and focus on relevant concepts that can be integrated to help students respond to their motivations to act as pro-environmental consumers.

This study also suggests that strategies in motivating young consumers, such as high school students, to be pro-environmental consumers need to be enhanced. This study also infers that other researchers must identify barriers in developing pro-environmental consumer behaviors among students. They are further encouraged to utilize other methods to explore these barriers that limit students' pro-environmental consumer behavior.

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