

Environmental Volunteering Values among University Students: Comparison between Gender and Study Stream

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Abstract

Environmental education has been embedded across the curriculum in the primary and secondary school curriculum to foster the value of volunteerism in environmental conservation. In this regard, students' involvement in environmental volunteerism requires support from different parties, especially educational institutions. In this light, students often face constraints that damper their intention to continue their involvement as environmental volunteers. The values of environmental volunteerism, specifically religion, biospheric, egoistic, and altruistic, are predictive factors in sustaining students' involvement in environmental volunteerism. Thus, this study aims to examine the values of environmental volunteerism among university students and compare these values based on respondents' gender and study streams. This quantitative study employed the survey research method where sets of the questionnaire were distributed to 357 respondents chosen from environmental volunteers across Klang Valley, Malaysia. The data was analysed using descriptive, t-test and ANOVA. The results showed that students demonstrate high environmental volunteerism values, specifically religious, biospheric, egoistic, and altruistic values. There are significant differences in the egoistic and religious values among female and male respondents. The male respondents showed a higher egoistic value, while female respondents demonstrated a higher religious value. Furthermore, respondents from different study streams demonstrated different environmental volunteerism values. This study's findings emphasize that different approaches based on gender and study streams should be taken to foster environmental volunteerism values among university students. This could also help sustain university students' involvement in environmental volunteering activities.

Keywords

Environmental Volunteerism, Social Work, The Value of Volunteerism,

1. Introduction

Our environment is in a worrying state, as reflected by the increasing destruction of forests, endangered wildlife, and climate change we experience today (Cléménçon, 2016). Environmental issues present a global and universal problem that needs to be given the utmost attention by every party (San & Azman, 2011). Stopping environmental destruction requires large-scale environmental conservation efforts, such as environmental volunteerism (Woosnam et al., 2019). In this light, volunteerism is a form of pro-social activity carried out with willingness and without any expectation of financial or other rewards (Woosnam et al., 2019; Omoto & Packard, 2016). However, the issues of dropout in environmental volunteering create a sense of urgency to identify factors contributing to environmental volunteering behavior. One of the factors that affect environmental volunteering behavior is values (Binder & Blankenberg, 2016; Woosnam et al., 2019).

Cultivating the value of environmental volunteerism in the early stages begins with environmental education across the curriculum at the school level. Environmental education aims to provide knowledge, increase motivation, change attitudes, and higher commitment to positive behaviour towards the environment (Samuelsson et al., 2018; Rentzou, 2021). Individuals will be less engaged in environmental-related activities when they lack environmental knowledge and see no value that could motivate them to engage (Kennedy et al., 2009; Cheeseman & Wright, 2019). Environmental education can nurture environmental value through activities carried out with students. Students at the university level have achieved the maturity which allows them to participate in large-scale environmental conservation through environmental volunteering activities. However, support should be given to sustain students' engagement as environmental volunteers. This is because the sustainability of their involvement in environmental volunteerism is influenced by different subjective factors, such as individual personality traits, motivations, attitudes, values, and life experiences (Fang et al., 2017; He et al., 2019; Wilson, 2012). Individuals are also influenced by their social environment, such as social norms associated with values and traditions, which affect their behaviour (Ishizawa, 2015; Youssim et al., 2015).

Value orientation is a fundamental factor that shapes our behaviour towards the environment (Schwartz, 2012). However, most behaviour studies have focused on examining values towards the environment in general (Binder & Blankenberg, 2016; Woosnam et al., 2019). Schwartz (2012) categorised environmental values into three (3) egoistic, altruistic, and biospheric values. These three environmental values are also the main antecedents in the Values-Belief-Norm theory by Stern (2000) in predicting behaviour towards the environment. Egoistic val-

ues focus on goals that give oneself importance, such as social strength, wealth, and personal success (Schwartz, 2012; Stern, 2000). Altruistic values concern social aspects such as family members, friends, and humanity, while biospheric values focus on the well-being of plants, animals, and other environmental aspects (Schwartz, 2012; Stern, 2000).

Limited studies examined the relationship between environmental values and one's culture and religion (Fang et al., 2017). Past studies have shown that religious values (Okun et al., 2017; Chowdhury, 2018) or culture can influence a person's intention to engage in environmental volunteer activities (Sloane & Pröbstl-Haider, 2019; Fang et al., 2017). On the other hand, studies found that environmental values in Asian countries differ from Western countries (Zheng et al., 2019). Aoyagi-Usui et al. (2003)'s study was conducted in Japan, Thailand, and the Philippines and it found that the environmental values in Asian countries are aligned with traditional values. This reflects the importance of studying values that focus on engagement as environmental volunteerism to understand the value orientation that could sustain students' involvement in environmental volunteer activities.

Demographic backgrounds also influence students' engagement as environmental volunteers (Niebuur et al., 2018). These include gender (Taniguchi, 2006; Einolf & Chambré, 2011) and the stream of study (Kyriakopoulos et al., 2020; Goldman et al., 2015). Past studies found that women are more likely to engage in environmental conservation than men (Lynn & Longhi, 2011; Macias & William, 2016). However, Xiao and Hong (2018) found men express more concern for the environment than women, while Piyapong (2019) reported that male students are more involved in environmental-related activities than female students.

Similarly, students involved in the science stream are more active in environmental volunteering activities than in other streams, including Islamic studies. Meanwhile, another study by Christian et al. (2018) did not find that one's study stream affects students' involvement in environmental volunteering activities. Such contradicting findings of past studies are not aligned with pro-environmental behaviour, especially in environmental volunteering activities. This demonstrates the need for researchers to analyse the differences in students' involvement in environmental volunteerism based on gender and study streams so that focused interventions can be planned and implemented.

2. Literature Review

The Role of Environmental Education on Environmental Volunteering

The effects of climate change and environmental destruction have called for an urgent large-scale environmental conservation action. Environmental volunteerism is seen as one of the initiatives to solve environmental issues at the local and global levels. It supports sustainable development goals and contributes to the Shared Prosperity Vision 2030. In the meantime, environmental education is important in promoting environmental volunteerism among students. The en-

environmental education theory states three types of environmental education i.e. Education *about* the environment, Education *in* the environment, and Education *for* the environment (Palmer, 1998). Most formal environmental education that begins in schools focuses on Education *about* and *in* the environment. On the other hand, hands-on education *for* the environment has been given less attention by educational institutions as a result of time constraints and a lack of commitment from educators (Shaari, 2009; Rahman et al., 2018).

On the contrary, at the university level, students have reached a level of maturity that allows them to contribute energy and time to environmental conservation efforts. Research by de Agrela Gonçalves Jardim et al. (2017) showed that college students prioritize affection, relationships and social support in achieving their goals that are relevant to environmental volunteering participation. Establishing NGOs or clubs related to the environment and effective promotion have increased student participation in environmental volunteerism activities. Environmental volunteering activities not only reduce the cost of environmental management by the government, but they can also benefit the students involved in them (Woosnam et al., 2019; Omoto & Packard, 2016). Among the benefits gained by the students involved are personal development, knowledge, and skills in environmental management, improvement of relationships and networking, preparing for the career environment, and providing well-being to students (Seligman, 2011). Furthermore, integrating environmental education with environmental volunteering enables students to holistically apply their knowledge in environmental conservation efforts.

The Values of Environmental Volunteerism

The values that motivate a person to engage in environmental volunteer activities are related to societal norms (Fang et al., 2017), culture (Sloane & Probstl-Haider, 2019), and religious beliefs (Okun et al., 2017; Chowdhury, 2018; Crowe, 2013). These factors have led to different values of environmental volunteerism between countries. A study by Sloane & Probstl-Haider (2019) found that career opportunities and learning experiences have a higher influence on the involvement of respondents from Great Britain compared to respondents from Australia, who are more influenced by culturally related values.

As a Muslim-Malay majority country, Malaysians are strongly influenced by Islamic values and cultural practices, such as gotong royong (mutual cooperation). In Islam, environmental volunteering is a religious demand (Kayikci, 2019; Yamin, 2019). However, the relationship between philanthropy, including environmental volunteerism, with religious factors is still under-studied (Zemo & Nigus, 2021). Thus, religious values should be considered to understand the value of environmental volunteerism.

Seligman (2011) proposes PERMA's theory in determining the well-being of environmental volunteers: positive emotion, engagement, relationship, meaning, and achievement. One's perceived well-being can affect the intention to continue engaging in environmental volunteering activities. According to Omoto and Snyder (1995), the motivation to sustain engagement as an environmental vol-

unteer will increase if one's values align with perceived well-being. However, most past studies on students' involvement in environmental volunteering only focused on the value of the environment rather than the value of environmental volunteerism.

According to Torkar & Bogner (2019), an individual with egoistic values will be more engaged in pro-environmental activities for their benefit. Among the benefits of these activities are learning new skills, improving the personality, improving self-confidence, preparing for face-to-face in the career world, getting new acquaintances, as well as reducing stress and emotional stress (Holdsworth & Brewis, 2014; Hustinx et al., 2010; Wuthnow, 1998; Binder & Blankenberg, 2016). However, egoistic values have a short-term effect after achieving one's personal goals compared to other values of volunteerism (Torkar & Bogner, 2019).

Biospheric values significantly predict environmental-related behaviour (Steg & De Groot, 2012). These values also influence an individual's intention to engage in environmental conservation activities such as environmental volunteerism, stewardship, and environmental campaigns (Torkar & Bogner, 2019; Van der Werff et al., 2014). The biospheric value orientation is related to an individual's assessment of environmental problems. Thus, awareness, a sense of responsibility, and empathy towards the environment contribute to the individual's involvement in pro-environmental activities (Bouman et al., 2020). In this sense, individuals with strong biospheric values have positive behaviour towards the environment (Bouman et al., 2020; Steg & De Groot, 2012; Van der Werff et al., 2014).

Involvement in volunteering mostly spurs from altruism or an intention to do good to others. According to Batson, Ahmad, and Tsang (2002), altruism motivates one to improve others' well-being. Altruism also refers to engaging in one action without expecting external rewards. Although altruism reflects selflessness and not expecting rewards, it could lead to intangible benefits such as higher self-esteem and the satisfaction of being able to do things for the universal good. Altruism is driven by social values such as wanting to help the local community, a sense of responsibility to the community, expanding the community of environmental volunteers, and benefits for future generations (Rahman et al., 2021; Schwartz, 2012). Foster (2018) and Omoto and Packard (2016) also found that the community's sense of responsibility greatly influences engagement as environmental volunteers.

Environmental Volunteerism Values Based on Gender and Study Stream

Boeve-de Pauw et al. (2014) found that women have more pro-environmental values than men. Nevertheless, the results of Piyapong (2019) show that men have environmental value and are more likely to engage in environmental activities at a higher level than women. This reflects the value of environmental volunteerism is influenced by environmental factors such as workload, family commitment, and knowledge of environmental issues (Levine & Strube, 2012; Piyapong, 2019).

Taniguchi (2006) found that full-time working women have more time constraints to engage in volunteer activities than men. Taniguchi and Marshall (2014) also found that women spend more time caring for and supporting their family and social circle than the wider community. Therefore, women need greater environmental support by organising environmental volunteer activities by local representatives, environmental campaigns, and environmental education. With the right support, women with high pro-environmental attitudes are more likely to engage in pro-environmental behaviour (Vicente-Molina et al., 2018).

A study by Hassan et al. (2010) found a high pro-environmental attitude among science (biology) students compared to non-science stream students. Heyl et al. (2013) argued that such difference in students' attitudes is because students in the science stream are more exposed to environment-related studies and information, which affect their attitude and behaviour towards the environment. Meanwhile, Tuncer (2008) found no difference between the attitudes towards sustainable development of students taking environmental related courses related that those who do not take environmental courses. Another study by Christian et al. (2018) found a high pro-environmental attitude among science and non-science students. However, non-science students had a lower level of participation and experience in environmental volunteerism. These contradictory findings are not aligned with the hypothesised differences between environmental volunteerism across gender and study streams. Hence, more in-depth studies are needed.

Based on literature review, it can be concluded that there are three types of environmental education i.e. Education *about* the environment, Education *in* the environment, and Education *for* the environment. Environmental volunteering is the type of education *for* the environment. Value is the first antecedent in predicting environmental behavior. Similarly, involvement in environmental volunteerism is influenced by egoistic, altruistic, biospheric and religious values. Previous research showed that the difference of environmental volunteering values is ambiguous. Therefore, the studies are needed to investigate the volunteerism values orientation among university students based on gender and study streams.

3. Research Methodology

This study aims to examine the value of environmental volunteerism among university students. Data were collected through a survey involving 357 university students involved in environmental volunteerism activities in the Klang Valley region of Malaysia. This study focuses on university students in the youth category because youths play a significant role and importance in the development of society and the country. According to Nesbit (2017), youths are more likely to engage in volunteering activities than older people. Students or youths act as leaders and agents of change who should participate in environmental conservation equally (Mcdougale et al., 2015).

Respondents

The study's respondents are university students who participated in volunteering activities conducted by government bodies, non-governmental organisations, or educational institutions like schools and higher education institutions in Malaysia. Specifically, the respondents comprised Muslim students ranging from 18 to 30 years old. This study employed randomised sampling due to the constraint of participating in environmental volunteer activities in the field following the Covid-19 pandemic. **Table 1** shows the profile of the survey respondents involved.

Research Instrument

This study's instrument comprises a questionnaire on the value of environmental volunteerism. The questionnaire developed in this study consists of two sections. Section A contains items to ascertain the respondents' demographic backgrounds, including gender, university type, and study stream. Section B consists of items on the value of environmental volunteerism, i.e., religious, egoistic, altruistic, and biospheric values. All items were constructed based on past studies. In Section B, the respondents must choose their answer based on a 5-points Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Examples of items from the questionnaire are shown in **Table 2**.

Validity and Reliability

Two experts in environmental education and environmental conservation reviewed the questionnaire to determine its validity and reliability. The completed questionnaire was distributed to five environmental volunteers to ensure its face validity, and the respondents could understand each item. The findings showed that all five respondents understood the items in the questionnaire.

A pilot study involving 36 environmental volunteers was conducted in September 2020. The Cronbach Alfa value for the environmental volunteerism values is 0.60, as shown in **Table 3**. As mentioned in [Hair et al. \(2010\)](#), the questionnaire's

Table 1. Survey respondents' profile.

Respondents Profile	Frequency	Percentage (%)
Gender:		
Male	151	42.3
Female	206	57.7
Type of University:		
Public	336	94.1
Private	21	5.9
Study Stream:		
Pure Science	84	23.5
Social Science	138	38.7
Professional	102	28.6
Islamic Studies	33	9.2
Total	357	100

Table 2. Examples of items from the questionnaire.

No	Construct	Adaptation Sources	Subconstruct	Examples of Items
1.	Environmental volunteering values (25 items)	Constructed by the researchers based on the theory of environmental values by Schwartz (2012) and Stern (2000) .	Egoistic	I participate in volunteering activities in my spare time
			Altruistic	I participate in volunteering activities because I want to serve the community
			Biospheric	I participate in volunteering activities due to awareness of environmental conservation
			Religious	I participate in volunteering activities to practice the religious value of environmental conservation

Table 3. Cronbach alpha values for environmental volunteerism values.

Construct	Cronbach Alpha
Egoistic	0.760
Biospheric	0.876
Altruistic	0.600
Religious	
Values	0.866

reliability is at an acceptable level.

Data Collection Procedure

The questionnaire items were typed into *Google Form*, and the link to the form was distributed to 357 environmental volunteers through social messaging apps such as Facebook, Whatsapp, and Telegram. Data were collected from December 2020 to March 2021, right at the pandemic's peak. Hence, using Google Form is considered the most suitable during this time. Each respondent took around 10 - 15 minutes to complete the questionnaire. Data obtained were then compiled into an excel spreadsheet before being transferred to the SPSS software for analysis.

Data Analysis Procedure

The data were analysed using descriptive and inferential statistics. Descriptive statistics comprise a frequency, percentage, mean, and standard deviation to determine the level of environmental volunteerism value among university students. The mean scores were interpreted based on [Nunnally \(1997\)](#), as shown below (**Table 4**).

Inferential analysis, i.e., t-test, was used to examine the differences in the value of environmental volunteerism across gender. Meanwhile, differences between students from science and non-science students were determined using one-way ANOVA. The data were analysed using SPSS version 23 software.

4. Findings

The Level of Environmental Volunteerism Values Among students

Descriptive analysis was carried out on four values of environmental volunteerism: egoistic, biospheric altruistic, and religious. The results showed that all four values of environmental volunteerism are high. Religious value demonstrated the highest value in environmental volunteerism, followed by biospheric, egoistic, and altruistic values, as shown in **Table 5**.

Differences in the Values of Environmental Volunteerism Based on Gender

This study examined environmental volunteerism values based on students' egoistic, altruistic, biospheric, and religious values. According to **Table 6**, it was found that the t-value for the comparison of egoistic values between males and females is $t = 0.464$, at the significance level, $p = 0.007$. These results reflect a significant difference in the egoistic values between males and females. The mean score shows that the egoistic value among male students (mean = 4.309) is higher than that of female students (mean = 4.278). The effect size for this section is 0.051, or 5.1%. Based on Cohen (1988), the effect size for egoistic values between males and females is low.

The t-value of the biospheric value is $t = -0.390$ with the significance level $p = 0.426$ while for altruistic values, $t = -0.962$ and significance level, p is 0.350. This result shows that there is no significant difference between male and female

Table 4. Mean score interpretation.

Scale	Mean Score Interpretation (Level)
1.00 - 2.33	Low
2.34 - 3.66	Moderate
3.67 - 5.00	High

Adapted from Nunnally (1997).

Table 5. The level of environmental volunteerism values.

Value	N	Mean	Standard Deviation	Mean Interpretation
Religious	357	4.546	0.622	High
Biospheric	357	4.525	0.621	High
Egoistic	357	4.291	0.602	High
Altruistic	357	4.282	0.625	High
Values of Volunteerism	357	4.412	0.554	High

volunteers' biospheric and altruistic values. In contrast, the t-value for religious value between males and females is $t = -1.047$, with a significance level of $p = 0.035$. Thus, there is a significant difference in religious values between men and women. The mean score shows that the religious value among females (mean = 4.576) is higher than that of male students (mean = 4.506). The effect size for this section is 0.112, or 11.2%, indicating a moderate effect size in the difference in religious values between male and female students. A summary of findings is shown in **Table 6**.

Differences in the Value of Environmental Volunteerism Based on Study Stream

The findings of the one-way ANOVA analysis shown in **Table 7** indicate

Table 6. t-tests results for the differences between egoistic, biospheric, altruistic, and religious values based on gender.

Subconstruct/ Value	Gender	Number	Mean	Standard Deviation	t-value	Significance Level	Effect Size
Egoistic	Male	151	4.309	0.661	0.464	0.007	0.051
	Female	206	4.278	0.556			
Biospheric	Male	151	4.510	0.630	-0.390	0.426	-
	Female	206	4.536	0.616			
Altruistic	Male	151	4.245	0.637	-0.962	0.350	-
	Female	206	4.310	0.617			
Religious	Male	151	4.506	0.638	-1.047	0.035	0.112
	Female	206	4.576	0.610			

Table 7. One-way ANOVA test results for egoistic, biospheric, altruistic dan religious values based on study streams.

Subconstruct		Squared	Degree of Freedom	Mean Squared	F	Significance Level	Effect Size
Egoistic	Between Group	3.489	3	1.163	3.273	0.021	0.17
	Within Group	125.436	353	0.355			
	Total	128.925	356				
Biospheric	Between Group	9.085	3	3.028	8.329	0.000	0.27
	Within Group	128.343	353	0.364			
	Total	137.428	356				
Altruistic	Between Group	6.912	3	2.304	6.146	0.000	0.23
	Within Group	132.342	353	0.375			
	Total	139.255	356				
Religious	Between Group	11.593	3	3.864	10.818	0.000	0.30
	Within Group	126.094	353	0.357			
	Total	137.687	356				

significant differences between egoistic, biosphereic, altruistic and religious values among students in different streams of study. The F value for egoistic value is ($df = 3, 353; p = 0.021$) = 3.273, $p < 0.05$, biospheric value ($df = 3, 353; p = 0.000$) = 8.329, $p < 0.05$, altruistic value ($df = 3, 353; p = 0.000$) = 6.146, $p < 0.05$ and lastly, the F value of religious value is ($df = 3, 353; p = 0.000$) = 10.818, $p < 0.05$.

The *Post-hoc Scheffé* Test results showed that for egoistic values, there is a significant difference between the mean score of the Social Science study stream students group (mean = 4.373) and with students group from the Professional study stream (mean = 4.146). Such difference shows that students from the Social Science study stream have higher egoistic value than those from the professional study stream ($p > 0.05$).

As for the biospheric value, there is a significant difference between the mean score of the students group from Pure Science studies with the students group from the Professional study stream (mean = 4.290) and the Social Sciences stream students group (mean = 4.658) with students group from the Professional study stream (mean = 4.290), $p > 0.05$. In this regard, the results indicate students from the Pure Science and Social Sciences study streams have a higher biospheric value than students from the Professional study stream.

In terms of altruistic value, the study found significant differences between the group of students from the Pure Science study stream (mean = 4.357) with those from the Professional study stream (mean = 4.081), Social Sciences students group (mean = 4.356) with students group from the Professional study stream (mean = 4.081) and students group from the Islamic Studies stream (mean = 4.471) with those from the Professional study stream (mean = 4.081), with $p > 0.05$. The mean scores show that students from the Islamic Studies, Pure Science, and Social Sciences streams have higher altruistic values than students from the Professional study stream.

Lastly, for religious values, there is a significant difference between the students group from the Pure Science study stream (mean = 4.621) with students from the Professional study stream (mean = 4.281), Social Science stream students group (mean = 4.684) with students from the Professional study stream (mean = 4.281), and students group from the Islamic studies stream (mean = 4.709) with students from the Professional study stream (mean = 4.281), with $p > 0.05$. The mean score shows that students from the Islamic Studies, Pure Science, and Social Sciences streams have higher religious values than students from the Professional study stream. The summary of the findings is shown in **Table 8**.

5. Discussion

This study found that environmental volunteerism value among university students is at a “High” level. The findings also showed that all four aspects of values examined (egoistic, biospheric, altruistic, and religious values) are at a “high” level. Based on the overall mean percentage, religious values obtained the highest

Table 8. *Post hoc scheffé* test result on egoistic values based on study stream.

Subconstruct	Group	Mean	Pure Science	Social Science	Professional	Islamic Studies
Egoistic	Pure Science	4.345				
	Social Science	4.373			*	
	Professional	4.146		*		
	Islamic Studies	4.329				
Biospheric	Pure Science	4.598			*	
	Social Science	4.658			*	
	Professional	4.290	*	*		
	Islamic Studies	4.611				
Altruistic	Pure Science	4.357			*	
	Social Science	4.356			*	
	Professional	4.081	*	*		*
	Islamic Studies	4.471			*	
Religious	Pure Science	4.621			*	
	Social Science	4.684			*	
	Professional	4.281	*	*		*
	Islamic Studies	4.709			*	

*Significant at $p < 0.05$.

mean score, followed by biospheric, egoistic, and altruistic values. Thus, religious value is the dominant motivation orientation for students' involvement in environmental volunteering activities. These findings align with past findings that religious values can influence an individual's intention to engage in environmental volunteering activities (Chowdhury, 2018; Fang et al., 2017; Sloane & Probstl-Haider, 2019). This is relevant to the Malaysian context, where most Malaysians are Muslims, and their actions are based on Islam's teachings and obedience to Allah. In this light, volunteerism is a noble practice in Islam and is encouraged among Muslims (Yang, 2018; Kayikci, 2019; Mangunjaya, 2010; Yamin, 2019).

Past studies found that altruistic and biospheric values have a long-term influence on individuals' involvement as environmental volunteers. In contrast, egoistic value has a short-term influence on engagement as an environmental volunteer (Torkar & Bogner, 2019). A study by Rachmatullaha et al. (2019) found that the egoistic value of respondents in developing countries such as Indonesia is higher than those in developed countries like Korea. This is likely to occur as people are more likely to put their needs first over the needs of the environment. In this regard, students have their own goals of engaging in environmental volunteering activities, such as forming positive emotions, for a fu-

ture career, meeting new people, networking, and improving skills (Molsher & Townsend, 2016; Rusk & Water, 2015; Faletahan et al., 2020). Therefore, environmental education through environmental volunteerism should focus on the student's goals to sustain their involvement as environmental volunteers.

The overall value of volunteerism comparison between male youth and women found that no difference existed between male youth and women. This finding contradicts the findings by Boeve-de Pauw et al. (2014), which found that women show higher pro-environmental values than Male. Nevertheless, Piyapong's (2019) findings show that males have environmental value and are more likely to engage in environmental activities at a higher level than women. The differences in these findings were influenced by environmental factors such as workload, family commitment, and knowledge of environmental issues (Levine & Strube, 2012; Piyapong, 2019). A more detailed analysis found that Male students had higher egoistic values than women. This is because egoistic values such as achievement and power are important factors for males to engage in environmental-related behaviour (Lan et al., 2010). However, Bhattacharyya (2016) found that female students focus more on egoistic values that are purely achievement than male students. This is in line with the role played by Male and female students and is physically and biologically appropriate based on gender.

Differences also occur in religious values in which women show higher religious values than Male. According to Kayikci (2020), women are more committed to applying religious and social values to volunteer activities. At the same time, the biospheric and altruistic values have no significant differences between Male youth and women. Nevertheless, Dzialo (2017) and Stöckert and Bogner (2020) found that women with high biosphere values are more likely to preserve and value the environment and have a higher sense of responsibility for the environment than Male. As for altruistic values, Vicente-Molina et al. (2018) found that women are more motivated by altruistic values in pro-environmental attitudes than Male. This gives the meaning that gender differences in the aspect of values and responsibilities to the environment are influenced by social and cultural contexts (Bhattacharyya & Rahman, 2020).

Students of different streams of study also showed the difference of environmental volunteerism values orientation. This is related to the commitment given by students in line with their field of study. A study by San & Azman (2011) found differences between groups of students from the Pure Science, Social Science, and Professional studies stream based on a commitment to the environment. Students from the Social Science stream have the highest environmental commitment level compared to those from pure Science and Professional studies streams. However, students from the environmental stream (Social Science) have a high environmental awareness (Samsudin & Iksan, 2015). While Zain et al. (2015) found that students from the engineering stream (Professional) have a high level of concern and awareness of environmental care.

According to Piyapong (2019), students in the Pure Science stream focus

more on activities related to the environment. On the other hand, students from Professional streams such as Business and Accounting majors are more involved in volunteer activities that do not involve the environment (Kyriakopoulos et al., 2020). Goldman et al. (2015) found that individuals with education in the environment and environmental-related subjects such as in pure Science and Social Science streams are more likely to engage in environmental-related activities. Students from the Islamic Education stream, on the other hand, focus more on volunteer activities related to claims to suit the nature of their field.

Youths from the Islamic Studies and Social Science streams intention to sustain their engagement as higher environmental volunteers than youths from the Professional study stream. However, this contradicts the findings by Christian et al. (2018), which found no significant differences between the stream of Science studies and the non-Science stream on participation in pro-environmental activities. Students who are often involved in outdoor activities such as hiking, camping, nature walks, fishing, and picnicking as recreational activities are more likely to engage in environmental volunteer activities (Christian et al., 2018). The experience in this activity prompted them to engage in pro-environmental activities after a relationship with the environment. For Professional stream students, such as Business courses, there is a challenge to apply environmental management elements in their subject of study (Jabbour et al., 2013).

The difference in the stream of study requires that the curriculum of courses related to environmental education be reviewed for improvement by diversifying topics or activities as well as projects involving community and experience-based learning (Boca & Saraçlı, 2019; San & Azman, 2011). Strengthening environmental volunteer activities by organising activities at high learning institutes allows students to interact directly with the environment and society (Boca & Saraçlı, 2019). This can also assist students in gaining knowledge and skills in environmental conservation as well as assisting in environmental conservation.

6. Summary of Findings

University students show high environmental volunteerism value. The findings also showed that all four aspects of values examined (egoistic, biospheric, altruistic, and religious values) are at a high level. Religious value is the highest, followed by biospheric, egoistic, and altruistic values. There are significant differences in egoistic and religious values among male and female students. The male respondents showed a higher egoistic value, while female respondents demonstrated a higher religious value. In contrast, there is no significant difference between male and female volunteers' biospheric and altruistic values. Furthermore, respondents from different study streams demonstrated different environmental volunteerism values.

7. Conclusion

This study contributes to the body of knowledge in environmental volunteerism

focusing on students. The findings of this study could guide environmental education planning through environmental volunteerism in line with the final goal of environmental education, which is to change behaviour towards environmental preservation. Environmental volunteerism contributes to students' development and large-scale environmental conservation efforts. The value orientation of environmental volunteerism should be given attention in understanding university students' intention to sustain their engagement in environmental volunteerism. Values identified as the driving force for students' involvement in environmental volunteerism should be emphasised to increase students' interest in participating in environmental volunteering programmes. As religious values are highest among students involved as environmental volunteers, environmental volunteering programmes must integrate elements of religion and spirituality.

Environmental education through environmental volunteerism should emphasise fostering environmental values. In this regard, education *for* the environment needs to be more emphasised on students than education *about* and *in* the environment, which students can directly apply to their actions. Each university should establish an environmental volunteering club that is open to all regardless of gender and study stream. This could provide support to environmental volunteerism and as creating student norms. The norms at the university make students more willing to engage in environmental volunteering activities when they graduate. This study has implications for the content and policies related to environmental education at the university level.

It is proposed that future studies extend their data collection to include interviews and observations of students' involvement in environmental volunteering to understand how environmental volunteerism values affect and sustain their intention to become environmental volunteers. This could address the limitations in data collection in this study, where data were collected during the pandemic, which had restricted environmental volunteering programmes. It is hoped that this study could guide organizers of environmental volunteering programmes in increasing students' interest in participating in group environmental conservation programmes.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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