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## EFFECTS OF AN ENVIRONMENTAL EDUCATION INTERVENTION ON ENVIRONMENTAL SUSTAINABILITY AMONG YOUTH IN MALAYSIA

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### Abstract

*Environmental sustainability issues must be disclosed to youths as early as possible to preserve and conserve the environment through formal and informal education. To date, there needs to be more local studies on interventions that encourage positive and behavioral changes that can improve their understanding, knowledge, attitude, and practices toward environmental sustainability. Environmental education intervention is one of the approaches that can be implemented to achieve this goal. This study aimed to evaluate the effects of an environmental education intervention on environmental sustainability among youths. This study was a one-group quasi-experimental study. This study recruited two hundred youths, and the data was collected pre and post-intervention. Respondents in the intervention received an environmental education package (i.e., environmental-based education talk supported with pamphlets and small group discussions). The paired t-test was used to determine the differences between the pre and post-intervention. The study showed a statistically significant difference in pre and post-intervention in understanding, knowledge, attitude, and practices toward environmental sustainability ( $p < .005$ ). Hence, the environmental education intervention was proven to be effective in increasing environmental sustainability and could serve as an intervention tool among youths in Malaysia to improve environmental protection and conservation.*

**Keywords:** *Environmental Sustainability; Knowledge; Attitude; Practices; Youths.*



## **A. Introduction**

The public's involvement and participation are needed to solve complex environmental problems alongside scientific, technical, and legal approaches. Hence, the contribution from youths is essential as they form a large number in the community and can affect environmental sustainability (Rahman, 2014).

Youths comprise the country's largest group, at approximately 13.88 million (45.8%) of Malaysia's population. Their large numbers are not only based on energy sources but also contribute significantly to the country as a stakeholder in achieving sustainable development. With this high percentage of youths, this current generation and future leaders are a significant asset in determining the country's direction and success. Hence, they should be aware of their role in the country's progress and development.

As a stakeholder, they should be directly involved in development projects planned and executed to achieve sustainable development. Sustainability development was launched globally during the Earth Summit in Rio de Janeiro in 1992, followed by the 2030 Sustainable Development Agenda with Sustainable Development Goals (SDGs). These environmental sustainability plans will ultimately affect people's well-being and economic growth. Therefore, it is unsurprising that world bodies through the United Nations (U.N.) are still focusing on sustainable development education by launching the United Nations Decade of Education for Sustainable Development 2005-2014 (Rahman, 2020).

SDG is about keeping nature and its services available for current and future generations (Stavins & Wagner, 2003). To ensure the protection and conservation of the environment, it is not the sole responsibility of the government. Society in general, including youths, should also play their part. Therefore, broader participation and involvement of the public, especially youths, are very much needed. Their role is crucial to boost their potential to the maximum level and prepare them to become leaders in their society and the country. Besides, they can help with the 2030 Agenda for Sustainable Development to ensure environmental sustainability (UNESCO,

2015). The government made efforts to link the 11th Malaysia Plan to the Sustainable Development Goals (SDGs) in hopes that these goals can be achieved by 2030 (Nazry, 2021). Therefore, youths are considered integral stakeholders in implementing SDGs (Yusof et al., 2022).

Youths play a crucial role in Malaysia as the nation's backbone, drivers of change in a society's economic force, and consumers and producers in shaping the country's future (Mohd Yusoff et al., 2022). They are also the future leaders responsible for a sustainable environment as they will determine the future survival of the state and nation. To prepare Malaysia to achieve sustainable development by 2030, it needs to play a proactive and sustainable role in preserving and conserving the country's sustainable development efforts while ensuring that people continue to have the opportunity to enjoy a clean and healthy quality environment for their health and well-being. Therefore, youth, as the successors to the country's leadership, are very much needed as agents of change in their communities. This is because one of the most critical components of the environment is the human-environment relationship, which significantly impacts the environment. Therefore, youths, as the highest majority group, can influence policy-making decisions planning and be the people's voice to ensure that nationwide decisions can positively impact everyone's well-being. Today, more than ever, they are change-makers, building new realities for themselves and their communities.

In order to improve sustainability practices, efforts need to be intensified among youth by improving their knowledge, attitude, and practices to help them preserve environmental sustainability and enjoy a clean and healthy environment. Youths can provide support and assistance or, more importantly, help maintain environmental Harmony by not becoming pollution agents. This would inspire them to become ambassadors or agents of change in instilling interest in caring for the environment within the community, especially among other youths in the country. Therefore, broader participation and involvement of the public, especially youths, as the successors of the country's leadership, are very much needed.



In general, youths are recognized as an active, healthy, fit, and open-minded group that should be sensitive to the importance of the environment and conserve the environment (Ibrahim, 2017). They are also the most active group in society and comprise almost half of the country's population, which can influence policy decisions regarding environmental well-being. In 2015, the total number of youths in Malaysia was 13.88 million, representing 45.8 percent of Malaysia's 30.26 million populations (Department of Statistics Malaysia, 2015). The high percentage of youths indicates that they are a critical asset in determining the direction and success of the country. Therefore, it is crucial to realize that youth involvement in the planning process is increasingly important. The power held by youth groups can change the decision of a project, especially those that can potentially affect the environment's welfare and negatively impact the surrounding community. The contribution of youth is essential in politics, economy, education, culture, and environment, among others.

To preserve the environment, the younger generation should cooperate with the government by participating in every environmental conservation program held, either by providing support assistance, preserving the environment, or not causing pollution. This group can also be involved in environmental issues by acting as observers, monitoring the status of the environment, and the effectiveness of management efforts. If this situation becomes a reality, the government's mission to create "zero pollution" will succeed, and the environment will be protected from all threats and pollution (Hashim & Che Ngah, 2005). However, the active involvement of the younger generation in protecting and preserving the environment depends on their level of environmental awareness, knowledge, beliefs, culture, and daily life practices. They must first understand their rights as part of Malaysian society to enjoy a prosperous environment, have comprehensive and accurate knowledge on how to preserve the local environment, and be able to act as agents of change in instilling an attitude of caring for the environment, and loving nature among the younger generation in the country. Nevertheless, it was found

that the involvement of youths still needed to improve in preserving and conserving the environment (Rahman, 2020).

Youth participation and involvement in environmental activities have been given severe attention globally. A local study by Abdullah et al. (2012) revealed that youth participation in community activities related to environmental conservation could have been more satisfactory. In addition, environmental preservation practices remained low among youths because they were less keen to understand the environment (Ismaila et al., 2016). Given the evidence, youth participation in community issues such as preserving and conserving the environment is essential to ensure they serve as leaders who promote pro-environmental behavior. Ibrahim (2017) suggested addressing youth involvement in community activities such as environmental conservation must be done by identifying existing knowledge, attitudes, and practices, followed by continuous stimulation to increase youth involvement. Therefore, this research is critical to increasing the involvement of youths in preserving the environment.

For these reasons, the involvement of youth in the conservation and preservation of environmental issues in Malaysia is very much needed. According to the Economic Planning Department of the Prime Minister (2017), the sustainability of environmental studies should be undertaken in the preparation, implementation, and assessment phases. Furthermore, an improved understanding of environmental sustainability with appropriate environmental intervention would help preserve and conserve the environment. Education is the best medium to instill environmental awareness and sustainable development among the general public, including the younger generation. An effective learning process will produce individuals and communities that are intellectual, sensitive, active, understanding, and able to distinguish between right and wrong.

Moreover, education is a continuous process for training people (Abdul-Halim et al., 2021). One effective way to address the increasing concerns related to environmental issues is through environmental education



(Samsudin & Iksan, 2015). Environmental education interventions can act as “agents of change” through appropriate methods to foster environmentalism among the younger generation. Therefore, environmental education plays a vital role in improving practices about environmental preservation and pro-environmental behaviors. Environmental protection and conservation are significant to improving environmental sustainability, and there needs to be more environmental education intervention studies in Malaysia. This study aims to evaluate the effects of environmental education interventions on enhancing understanding, knowledge, attitudes, and practices towards environmental sustainability among youths in the Federal Territories, Malaysia.

## **B. Method**

This study was conducted in private youth organizations in the Federal Territory of Kuala Lumpur and Putrajaya, Malaysia. This location was chosen for the study because Kuala Lumpur and Putrajaya represent the Federal Territory of Malaysia. It was also chosen because of the similarity in the population, where they are not only near one another, but these populated areas also have the highest number of youths in Malaysia, as the Department of Statistics Malaysia reported.

A total of 200 respondents were selected for this study. Staff in the respective centers in Kuala Lumpur and Putrajaya helped identify and select suitable participants. Only youths that met the inclusion criteria of being between 15 and 40, Malaysian citizens, can read Malay or English, and have yet to experience environmental education programs were included in this study. The exclusion criteria included individuals with low literacy and who cannot read. The respondents were briefed on the study before data collection, questionnaire, and education session.

This study used a quasi-experimental research design, specifically one-group with pre-test and post-test design. The group was subjected to pre-test observations and subsequently received the intervention. After the intervention, post-intervention test observations were done (Cook & Campbell, 1979). For this study, observations of behavior change were made in the



same respondents in different types of environments, in which respondents were assessed prior to the intervention (baseline/ pre-intervention) and after the program (post-intervention) to determine the effectiveness of an environmental education intervention. Pre-intervention/ baseline data was collected before the intervention at the respondent's place and post-intervention using a validated self-administered questionnaire. Hence, this research design is appropriate for examining the effectiveness of an intervention program or teaching method.

This study used a self-administered questionnaire to assess youths' understanding, knowledge, attitude, and practices on environmental sustainability. The questionnaire also surveyed the respondents' sociodemographic background. The respondents were required to rate each item on a 5-point Likert scale. Follow-up data were collected using the same questionnaire immediately after the intervention to evaluate its effectiveness.

The independent intervention program is an environmental education program that aims to improve environmental sustainability among youths. The respondents were involved in an intervention program comprising learning activities, including environmental-based education talks, small group discussions, and pamphlets. The participants attended academic talks and small group discussions as part of lecture sessions delivered by the researcher using Microsoft PowerPoint slides. The slides described the environmental education program, understanding of environmental sustainability, knowledge, attitude to environmental sustainability, and relevant practices. Face-to-face group meetings followed the sessions. Subsequently, each participant in the environmental education program was provided with a pamphlet on the conservation and preservation of the environment and environmental sustainability. The pre-test and post-test duration were three months.

Data were analyzed using SPSS version 25. Descriptive statistics analysis was used in this study to describe the sociodemographic



characteristics of respondents and is presented in frequency and percentage calculations. In addition, the changes in baseline/ pre-test and post-test within the groups were determined using a paired sample t-test analysis. The difference with p-values < 0.05 was considered significant.

## C. Result and Discussion

### 1. Result

#### a. Respondent Profile

Table 1 shows that out of 200 respondents, 81 (40.5%) are male, and 119 (59.5%) are female. The majority of respondents are aged 21-25 years, with 131 respondents (65.5%), followed by 15-20 with 35 (17.5%), 31 and above with 24 (12.0%), and 26-30 with 10 (5.0%). In terms of religion, 159 (79.5%) respondents are Muslims, followed by Buddhists with 28 respondents (14%), nine respondents (4.5%) are Hindus (4.5%), 3 (1.5%) practice Christianity and one practices Taoism (0.5%). For their level of education, the majority of respondents have university-level education with 162 (81%), followed by secondary school level education with 30 (15%), no schooling with 6 (3%), and primary school level education with two respondents (1%).

Table 1. Demographic profile of respondents (n=200)

Type	Demographic	Frequency	Percentage
Gender	Male	81	40.5
	Female	119	59.5
Age	15 - 20	35	17.5
	21 - 25	131	65.5
	26 - 30	10	5.0
	>31	24	12.0
Religion	Islam	159	79.5
	Buddha	28	14.0
	Hindu	9	4.5
	Christianity	3	1.5
	Others (Taoism)	1	0.5
Education Level	Non schooling	6	3.0
	Primary	2	1.0
	Secondary	30	15.0
	University	162	81.0

b. *The understanding, knowledge, attitudes, and practices changes in pre- and post-intervention among youths.*

Paired t-test analysis was used to compare the mean score of understanding, knowledge, attitude, and practices on environmental sustainability pre and post-intervention. Table 2 shows the change in the mean score of understanding, knowledge, attitude, and practices from baseline/ pre- to post-intervention. The table further reveals that there is a statistically significant difference from pre to post-intervention on understanding, knowledge, attitudes, and practices towards environmental sustainability [M = .8118 (S.D. = .16214), M = .9209, (S.D. = .10483);  $t(200) = 7,919$ ;  $p = .000$ ], [M = .8118 (S.D. = .16214), M = 3.9650 (S.D. = .58079);  $t(200) = 2,635$ ;  $p = .009$ ], [M = .7578 (S.D. = .13337), M = .8046 (S.D. = .09483);  $t(200) = 3,912$ ;  $p = .000$ ], [M = 2.9084 (S.D. = .47083), M = 3.0706, (S.D. = .44773);  $t(200) = 3.621$ ;  $p = .000$ ] respectively. This finding proves that environmental education intervention helps improve understanding, knowledge, attitudes, and practices towards environmental sustainability.

*Table 2. Differences in understanding, knowledge, attitude, and practices at pre and post-intervention among youths*

Variables	Mean	SD	t	p
Understanding			7.919	.000
Pre (Baseline)	.9209	.10483		
Post-intervention	.8118	.16214		
Knowledge			2.635	.009
Pre (Baseline)	3.9650	.58079		
Post-intervention	3.7961	.68183		
Attitude			3.912	.000
Pre (Baseline)	.8046	.09483		
Post-intervention	.7578	.13337		
Practice			3.621	.000
Pre (Baseline)	3.0706	.44773		
Post-intervention	2.9084	.47083		

*Notes. Paired t-test, significant at  $p \leq 0.05$*

## 2. Discussion

To our knowledge, no study has evaluated an environmental educational intervention on environmental sustainability to improve youths'



understanding, knowledge, attitude, and practices in the Federal Territories, Malaysia. Environmental educational intervention might improve youths' understanding, knowledge, attitude, and practices on environmental sustainability.

Generally, the environmental education intervention, specifically environmental sustainability, improved among all participants. The study revealed significant differences in understanding, knowledge, attitude, and practices between pre-test and post-test for one group ( $p < .005$ ). This indicates a more significant increase in understanding, knowledge, attitude, and practices towards environmental sustainability after education intervention and that the program had a favorable response among the youths. This result also revealed the positive effects of the environmental education intervention, which effectively spread understanding, knowledge, attitudes, and practices among youths. These results were similar to the research by Sellmann and Bogner (2021) on environmental education programs towards environmental attitudes and contentedness with nature among students in high schools. Similarly, another study investigating an educational intervention to foster environmental citizenship among undergraduate university students showed a significant and positive impact of the sustainable development course on the students' environmental citizenship (Telešiene et al., 2021). This reveals a practical suggestion to relevant stakeholders in prioritizing the importance of environmental protection and conservation among youths.

Knowledge and information are the basis for changing attitudes towards the environment (Shutaleva et al., 2022). There is evidence that young people in Malaysia typically have a high degree of environmental consciousness and an optimistic attitude towards the environment (Rahman, 2020). Nevertheless, environmental preservation practices remained low among youths because they were less keen to understand the environment (Ismaila et al., 2016). Thus, continuous education can shape human beings from not knowing to knowing (Rahman, 2020). This is supported by Callicott (2000), who stated that a continuous approach to improving attitudes and



behavior in society towards the environment is essential to minimize environmental damage. Studies from Spradling (1999) and Callicott (2000) have shown that focusing on the environment can help change society's daily attitude and practices to overcome environmental problems.

An environmental education study conducted by Sellmann et al. (2013) in Germany among high schools showed that environmental education on climate change fosters environmental attitudes that can be integrated into a climate change education program and consequently support behavioral outcomes. In addition, university students who participated in the sustainable science program showed improved environmental concern and attitude and practices toward environmentally friendly behavior (Abdul-Halim, 2005).

Moreover, integrating education for sustainable development into learning at Higher Education institutions is essential to increase knowledge and inspiration among students to become future change agents related to sustainability (Pittman, 2004). In this regard, educational institutions are an appropriate platform to educate and form the desired attitude towards the environment among the new generation of the nation (Samsudin & Iksan, 2015). These findings support that environmental education programs can change respondents' understanding, knowledge, attitudes, and practices toward environmental sustainability.

Environmental education also helps youths find a balance between society's current needs and the possible consequences of decisions made. Furthermore, for young people, active involvement in the community, including for environmental sustainability, is one of the many processes known to foster positive youth development (Pittman et al., 2003; Schusler & Krasny, 2010). Therefore, environmental education can shape the community, especially the youths, to be concerned and sensitive about the environment. In addition to that, it will also encourage youth to undertake positive practices to protect the environment. In summary, all participants who received environmental education intervention demonstrated an improvement in environmental sustainability practices.



## D. Conclusion

This study evaluated the effectiveness of environmental education intervention on environmental sustainability among youths. The study's findings showed that environmental education intervention effectively improves the youths' understanding, knowledge, attitude, and practices towards environmental sustainability. This intervention also improved environmental preservation and conservation among youths. Therefore, promoting environmental sustainability and increasing the level of involvement of youth can be obtained from environmental education and awareness programs. Environmental education programs should be promoted in schools, higher education institutions, and youth centers to improve awareness of protecting the environment. Increasing understanding, knowledge, attitude, and practices on environmental sustainability through ongoing intervention programs could be taught to youths and relevant stakeholders (Youth Association, Ministry of Youth and Sports, and Department of Environment) to initiate environmental awareness.

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