

# The Needs of Geo-Education Module for Trainee Teachers: A Preliminary Study

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Received May 7, 2020; Revised July 9, 2020; Accepted July 20, 2020

## Cite This Paper in the following Citation Styles

(a): [1] Aliff Naw, Mohd Faiz Mohd Yaakob, Mat Rahimi Yusof, Chua Chy Ren, Fatimah-Salwa Abd Hadi, Zainizam Zakariya, Tamil Selvan Subramaniam, Azila Jaini, "The Needs of Geo-Education Module for Trainee Teachers: A Preliminary Study," *Universal Journal of Educational Research*, Vol. 8, No. 9, pp. 3902 - 3906, 2020. DOI: 10.13189/ujer.2020.080914.

(b): Aliff Naw, Mohd Faiz Mohd Yaakob, Mat Rahimi Yusof, Chua Chy Ren, Fatimah-Salwa Abd Hadi, Zainizam Zakariya, Tamil Selvan Subramaniam, Azila Jaini (2020). *The Needs of Geo-Education Module for Trainee Teachers: A Preliminary Study*. *Universal Journal of Educational Research*, 8(9), 3902 - 3906. DOI: 10.13189/ujer.2020.080914.

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**Abstract** This needs analysis study was undertaken to obtain a preview of the acceptance of Geo-Education Module as a new module in environmental education. This study focused on the needs of module building, the importance of knowing the natural ecosystem, the need for exposure to natural disasters and sustainable lifestyles. This study used a mixed method that combined quantitative and qualitative data. This design of quantitative research involved a survey through questionnaires distributed online. A total of 192 trainee teachers from the Institute for Teacher Education and Public University located in the north of peninsular Malaysia were selected. While the qualitative study involved interviews with five study participants. The findings showed that this module is in high demand for teaching environmental education and were important in providing information to teachers and students. The findings also indicated that the majority of respondents were aware of the aspects of environmental protection that are important to be applied in various fields of study. The importance of creating materials or modules that touch on current aspects is an ongoing step in developing future strategies for preparing for any natural disaster. The implications of developing modules in the current context were discussed in this study.

**Keywords** Geo-Education, Pre-Service Teacher, Environmental Education, Module Development

## 1. Introduction

The word 'Geo' came from the Greek word meaning "earth," which can also be interpreted in the sense of land; global or Earth-related. The concept of Geo-Education is gaining public attention today. Great developments are being brought in to manage 8Gs like Geoheritage; Geoconservation; Geosites / Geoparks; Geomanagement; Geo-education; Geotourism; and Geodiversity [1].

In the context of education, Geo-Education is a globally recognized environmental education that gives the current generation a basic understanding of how human and the environmental world works in local, regional and global contexts [2]. In general, Geo-Education is an information disclosure process to develop students' concerns, skills, attitudes and values. This process enables greater involvement of teachers and students locally, nationally and internationally and helps them work towards a more sustainable future. This is because the element of education

is a key agent in transforming the community for the better and is an important vehicle for achieving the objectives outlined in the Sustainable Development Goals [3,4,5].

In Malaysia, Geo-Education is still emerging and introduced to the public. Geo-Education is also very similar to Environmental Education and needs to be rebranded in response to the Sustainable Development Goals (SDG) [6]. In fact, there are some places that use Geo-Park terms like the UNESCO Global Geopark Langkawi as one of the contributors to the international and domestic tourism industry.

## 2. Problem Statement

Environmental Education has also been formally implemented through a planned curriculum since 1983 in the Kurikulum Bersepadu Sekolah Rendah (KBSR) and later, in 2012, through the Kurikulum Standard Sekolah Rendah (KSSR). It was then introduced as Cross-Curricular Elements (EMK) in 2017 through global sustainability. However, the reality is that the implementation of environmental values has not been fully executed in teacher education and is not acceptable to the target group of students [7,8].

In addition, there are not many local researchers who have focused on sustainable development in their research [9]. According to a report from the Department of Environment [10], constraints on clear information of sustainable development implementation are one of the reasons why sustainable development is stagnant. Moreover, the misunderstanding of the concept of sustainable education in the environment has also caused this issue to be ignored [11,12].

According to Wooltorton [13], the absence of specific guidelines and guidance from professional environmentalists makes it so difficult for them that they ignore the environmental sustenance aspects. This indicates that the absence of guidelines can lead to misunderstanding on the concept of environmental education that ultimately affects the care of the environment. In addition, the lack of awareness on the implementation of sustainable development in the lives of consumers also affects the achievement of the Sustainable Development Goals (SDGs) [14]. This shows that exposure to Geo-Education is particularly important in addressing a lack of information on how it should be taught in teaching and learning in schools.

## 3. Literature Review

Sustainable education is an educational necessity for local and international interests. This is taken seriously by UNESCO's coordination, in the sense of building creatively and addressing the current and future global challenges and creating a more sustainable and resilient

society (UNESCO, 2016). In particular, sustainable education enables students to integrate environmental considerations in making more informed decisions [15].

The Education Sustainable Development (ESD) approach in the context of education was also adopted by the world body through The World Conservation Union (IUCN) conference with the concept of "education for sustainable living" in the late 1990s [16]. To this day, the world body through the United Nations continues to focus on the ESD by launching the United Nations Decade of Education for Sustainable Development (2005-2014) with the emphasis to all countries on the importance of integrating sustainable development principles, values, and practices into all aspects of education and learning" [17].

There are major issues surrounding this issue: Education for sustainable development (ESD) is generally a process for developing students' concern, skills, attitudes and values. This process enables their involvement in sustainable development to be more effective locally, nationally and internationally and helps them work towards a more sustainable future. Environmental concerns need to be addressed through education. This is because the element of education is a key agent in transforming society for the better and is an important vehicle for sustainable development [3,4,5].

## 4. Research Methodology

This study used a mixed method approach that combined quantitative and qualitative research design. The design of quantitative research involved a survey through questionnaires distributed online. The questionnaire distributed was related to the Geo-Education construct. This construct was an adaptation of the Environmental Education Module construct. There were five major constructs in Geo-Education such as Primary; Natural Ecosystems; Issues of Concerns; Sustainable Lifestyle and Cross-Curriculum. A total of 192 trainee teachers from the Institute of Teacher Education (IPG) and Public University (UA) located in the north of peninsular Malaysia were selected as purposive sampling for this study.

The qualitative research design involved interviews with five study participants. Data collection used a combination of quantitative and qualitative approaches aimed at obtaining additional detailed information to provide a deeper understanding of a research problem [18]. Through this combined approach, both quantitative and qualitative data sets were linked in order to build on another set of data.

## 5. Findings

The findings of this need analysis study were divided

into three aspects namely respondent profile, module acceptance and interview. This needs analysis was conducted on 192 trainees from IPG and UA. The demographic information of the trainee teachers involved in this study is described in the following diagram. Looking at it in more detail, 71.4% of the respondents in the study consisted of female trainee teachers. The remaining 28.6% were male trainee teachers. 88.1% were from trainee teachers from IPG and 11.9% were trainees at UA of the college campuses. To implement the Geo-Education Module in the field of environment study, researchers need to obtain student feedback to determine whether this module is practical as Cross-Curricular Elements (EMK) in teaching and learning in schools. Table 1 shows the findings of the Geo-Education Module as a new module in the field of environment.

Based on Table 1, all the respondents agreed that there was a need for the construction of the module (S1). In addition, the majority of respondents also acknowledged the importance of exposure to the knowledge of the ecosystem (S2). The respondents also agreed that the need to know the issues affecting the earth and the environment was important (Q3). As for item S4, which was related to sustainable lifestyle, the majority of respondents acknowledged that it was one of the most important aspects of everyday life. While for the last item, item S5, the majority of respondents strongly agreed that this module was suitable to be accepted and implemented as Cross-Curricular Elements (EMK).

**Table 1.** The Acceptance of Geo-Education Module

	n	Mean	SD
S1: Is there a need for the construction of a geo-education module?	192	4.32	0.76
S2: Is there any importance to know the basics of the natural ecosystem?	192	4.43	0.74
S3: Is there a need to know issues affecting the earth / nature?	192	4.49	0.69
S4: Sustainable lifestyle is an important practice.	192	4.58	0.67
S5: The Geo-Education Module is suitable as Cross-Curricular Elements (EMK)	192	4.38	0.71

**Interview Findings-** Interviews with the trainee teachers were conducted in a small Focus Group Discussion which involved four trainee teachers. There were one male and three females in the discussion group that took place. Two of them were Bachelor of Education (Business Management) students (GP01 & GP02) and one was a student in Bachelor of Education (Accounting)(GP03), and another in Bachelor of Education (Guidance and Counseling) (GP04).

From the interviews conducted, respondents have acknowledged that there was a need to teach Geo-Education Modules in schools. This was acknowledged by GP01 and GP02 where this module was "necessary" to be implemented in teaching and learning in schools as presented below:

*"In my opinion, knowledge on environment needs to be taught..."* (GP01)

*"Schools have to organize environment programs..."* (GP02)

In addition, they also recognized the importance of knowing the basics of the "environmental" ecosystem. This is stated in the following statements:

*"Yes. Hardships caused by natural disasters and then lack of oxygen if the forest is not maintained..."* (GP01)

*"Explore something new related to business that doesn't pollute the environment ... "* (GP04)

On the one hand, they also acknowledged that there were "critical" environmental issues that were constantly occurring in the world. This is as stated in the following statement:

*"The government set a quota or instruct the logging company to replant the tree or the tree that will be cut down should follow a certain measurement..."* (GP01)

*"Build a green business ... This will be an inspiration in my teaching ... I inculcate go green..."* (GP04)

The Geo-Education Module was also recognized by the study participants as can be implemented as Cross-curricular Elements (EMK) in teaching and learning in schools. Some of the topics that can be adjusted are "basic economy", "principles of accounts", "guidance and counselling" and "business". This is supported by the following statements;

*"...in the subject of basic economy, we apply it through government restrictions on logging activities..."* (GP01)

*"...in the subject of accounting, I agree and it's ok..."* (GP02)

*"...in Guidance and counselling, create a green earth program..."* (GP03)

*"Yes, in green-based business..."* (GP04)

Therefore, the findings of the needs analysis indicated that the Geo-Education Module was important to be implemented as EMK in teaching and learning in schools. The majority of respondents acknowledged that this module was essential as a way of exposing students to knowledge and issues related to the environment.

## 6. Discussion

Based on the findings, the acceptance to create a new module on the environment was very high. Although the ministry has had modules and materials since 2010, the implementation and disclosure in schools is still not comprehensive [7]. According to previous studies, the effectiveness factors of a module are also influenced by the teaching materials and methods used [19,20]. In fact, a

study by Ball [21] found that using out-of-date material limits information and does not help students think in the current context.

In addition, this module can expose students to current natural catastrophe phenomena such as forest fires, floods, haze, sudden weather changes, earthquakes and landslides, which indicate that the need to create a Geo-Education Module is extremely appropriate. Previous studies have also revealed that a person who has experienced a disaster can raise awareness and take appropriate action in the event of a disaster [22,23]

The findings also indicated that the majority of respondents were aware of the aspects of environmental protection that are important to be applied in various fields of study. The importance of creating materials or modules that touch on current aspects is an ongoing step in developing future strategies for preparing for any natural disaster [24]. As has been implemented in schools, the EMKs that focus on environmental sustainability should be nurtured through teaching and learning in all subjects.

## 7. Summary

Based on the previous discussion, the importance of establishing a new module in environmental education is very important. The environment is a gift of God that is invaluable to human well-being and other life on earth. The existence of the environment is also a major source of human life. As such, the upcoming Geo-Education module is expected to serve as a guide and a supplement to education. This module will also assist and facilitate teachers and students in implementing teaching and learning related to environmental sustainability. The existence of this module will not only provide information and information for teachers and students, but they will also be exposed to methods and strategies on how to nurture and conserve the environment.

## Acknowledgments

This paper is a part of a research project entitled Development and Evaluation of Geo-Education Module for Trainee Teacher in Practicum, project reference Code SO (14344). This project is funded by Universiti Utara Malaysia with a grant from Graduate Development Research Grant - Grad.

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