

The Effectiveness of Teacher Training on Environmental Education: Challenges and Strategy for Future Training Program

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Abstract: A professional teacher is a teacher who masters professional knowledge and skills. Increasing their professionalism is needed to achieve Sustainable Development Goals (SDGs). This research attempts to analyze the effectiveness of teacher training programs in environmental education that focus on identifying the challenges and strategy for the future training program. The research method was triangulation, combining quantitative and qualitative data analysis, including document analysis, questionnaire, and interview results. Sixty-five teachers with experience in environmental education were surveyed, and seven were interviewed. The results show that the sustainability context (environmental, economic, and sociocultural dimensions) needs to be embedded into environmental education teacher training. All training materials are currently oriented toward the environmental context. The provided training focuses on imparting knowledge on environmental education and has not yet expanded to include raising awareness or fostering sustainable action. As a result, future teacher programs must emphasize not only knowledge, but also awareness and action to attain sustainability. Schools and other relevant parties must fully support the rollout of the teacher-training initiative.

Keywords: Environmental education; Future training program; Sustainability; Teacher training program

Introduction

A nation's development is primarily determined by its educational development. A professional teacher contributes to the advancement of education. No matter how good the buildings and curriculum are, if the teachers are not qualified, the school will not achieve success (Amir et al., 2023). A professional teacher is a teacher who masters professional knowledge and skills (Mockler, 2022). An experienced teacher must continually increase his knowledge and skills (Amelia et al., 2022) through workshops, seminars etc. Government efforts to increase teacher professionalism continue to improve teacher professionalism to achieve SDGs.

Education is essential for achieving the SDGs. Education for sustainable development (ESD) promotes changes in knowledge, skills, values, and attitudes to create a more sustainable and equitable society for everyone (Agbedahin, 2019; Leicht et al., 2018). ESD studies are not only sustainable in terms of the environment or natural resources, but they are also multi-dimensional. The application of ESD also considers culture, social relations, citizenship responsibility, and even world citizenship for humans to think globally (Albuquerque et al., 2023).

There are no curriculum explains ESD (Eliyawati et al., 2022), so ESD learning must be conducted secretly, a barrier to its implementation. In addition, there are no teachers with a background in ESD (Eliyawati et al., 2023), so the integration of ESD into lessons remains

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minimal. Nevertheless, environmental education subjects have emerged due to ESD integration efforts (Acosta Castellanos et al., 2022). Teachers who instruct environmental education typically have a background in science education. Nevertheless, based on the survey results, science teachers are not prepared to teach ESD. The teacher’s knowledge about ESD is still low (Novidsa et al., 2020). Therefore, efforts are required to increase science teachers' capacity to teach ESD (Eliyawati et al., 2023; Mulyadi et al., 2023). Increasing professionalism through training is one of them. The training most frequently attended by science teachers or teachers of environmental knowledge is environmental education training. Environmental education is an organized educational activity in the environmental field at all educational levels (Darmawan et al., 2021). Environmental education training can provide teachers with experience in maximizing the school's natural surroundings as a learning resource for students (Cheah, 2019).

Several environmental education-related training or lessons have been conducted, including environmental education training for prospective teachers (Gulomiddinova & Musayevich, 2022), environmental education for sustainability (Wahyudin & Malik, 2019), environmental education integrated into science learning (Purwianingsih et al., 2022; Wichmann et al., 2022), environmental education provided by adiwiyata schools (Moklis et al., 2019; Susanti, 2021), ESD in science learning (Aina et al., 2023; Purbawati,

Prabawani, & Hadi, 2019; Sutanto, 2017) and ESD training (Daniels & Niemczyk, 2022; Scherak & Rieckmann, 2022). Therefore, it is crucial to analyze the implementation of environmental education training and similar programs. This is meant to determine the benefits and drawbacks of environmental education training. In addition, this analysis aims to analyze the challenges that will arise and choose the best strategy if environmental education or ESD-related training implemented in Indonesia. Consequently, this study relates to the effectiveness of teacher training on environmental education: challenges and strategy for future program.

Method

The research method used was triangulation, combining quantitative and qualitative data analysis. The data collection included the document analysis, questionnaire, and interview results (figure 1). The document analysis analyzed ESD teacher training materials based on content, sustainability context, articulation, and action-knowledge oriented. The sustainability context based on the ESD dimensions consists of environmental, economic, and social (Vásquez et al., 2021). The level articulation is categorized from 0~3, which explains the degree of sustainability context. The following describes the articulation level employed (table 1).

Table 1. Level of Articulation (Vásquez et al., 2021)

Level of Articulation	Description
Level 0	The initially presented context does not refer to any of the contexts for sustainability.
Level 1	The sustainability context appears in an initial or motivational activity but is not used in any other task.
Level 2	The sustainability context appears discontinuously throughout the lesson and does not support all the proposed tasks.
Level 3	The sustainability context is the backbone of the proposed lesson, from the beginning to the end.

The last is action-knowledge oriented, which is ordered from dimensions I~IV (Jensen, 2002). Dimension I relate to knowledge about the existence and spread of environmental problems and their consequences. Dimension II pertains to knowledge about the root causes of environmental problems. Dimension III relates to knowledge about strategies for change. Finally, dimension IV concerns knowledge about alternatives and visions (Jensen, 2002).

The Google form platform is utilized for online questionnaire-based data collection. The distribution of questionnaires to 65 science teachers who had participated in environmental education, adiwiyata, or ESD teacher training programs. Twenty-two respondents have ever attended an ESD training program. Twenty-three respondents had participated in

training for adiwiyata schools, while the remaining respondents had attended training for environmental education. Fifty public school teachers and 15 private school teachers were among the respondents. There are more women than men among the respondents. In addition, 13.8 percent of respondents teach at the elementary school level, 49.2 percent at the high school level, 35.4% at the senior high school level, and 1.5% at the graduate level across 33 provinces in Indonesia. The teaching experience of the respondents was as follows: 9.2% (less than five years), 23.1% (5-10 years), 20% (10-15 years), 16.9% (15-20 years), and 30.8% (more than twenty years).

The questionnaire was constructed using predetermined indicators for training materials, training implementation, training goals, benefits, and

implementation. The training materials include content, pedagogy, evaluation, and implementation management components. Training implementation includes pre-training, training, and post-training. The requested training objectives included socialization/information dissemination, implementation, and evaluation. Training provides benefits such as insight/knowledge and learning. Implementation includes environmental education objectives, student support, and challenges or other support as required.

education, adiwiyata, or ESD. Eight teachers are participating in this interview. Included in the questions were the training's name, implementation year, training content, training analysis, and post-training support. The interview proceeded without a hitch, and the interviewers obtained precious information for future training planning.

Result and Discussion

Document Analysis Result

Teacher training to develop teacher professionalism has often been held either by the government or certain training institutions. Numerous teacher trainings have been carried out, some of which are related to environmental education, such as training on environmental knowledge education, training for adiwiyata schools, and ESD training. These are just some of the trainings that has been carried out. The following is an analysis of a training document about environmental education that was put together by one of the institutions that offer teacher training (table 2).

All training materials are still oriented to the environmental context when training for environmental education is considered to focus not only on the environmental content (Gunansyah et al., 2021) but also on the sustainability context (Vásquez et al., 2021). It means it does not meet the ESD dimensions: environmental, economic, and sociocultural dimensions (Leicht et al., 2018), assuming that the goal of the training is to facilitate learning that can help support the Sustainable Development Goals (SDGs)(Aisy & Gunansyah, 2020).

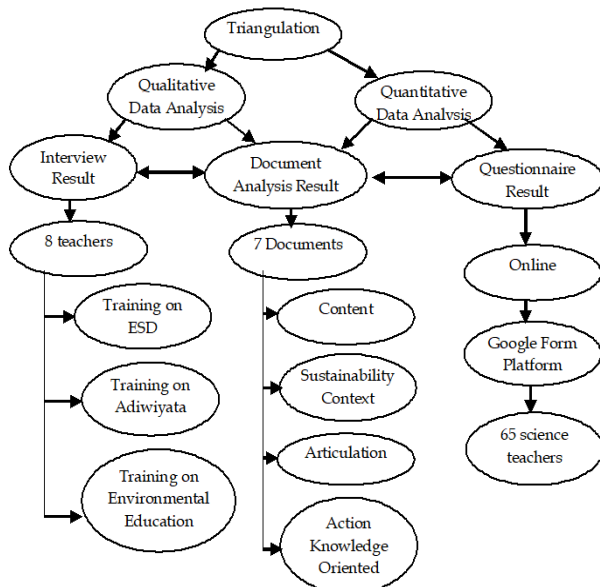


Figure 1. Research scheme

The final step involved interviews with several teachers who had received training on environmental

Table 2. Document Analysis

Content	Sustainability Context	Articulation	Action Oriented-Knowledge
Environmental Education Profiles in Southeast Asia.	Environment, economic, and social	Level 3	I, II, III
Sustainable Development: Historical Perspective and State of the Art.	Environment, economic, and social	Level 3	I,II,III, IV
Teaching on Climate Change and Biodiversity in Classroom.	Environment	Level 1	I,II
Green House Effect and Climate System.	Environment	Level 2	I,II
Ocean and Climate Change.	Environment	Level 2	I,II
Biodiversity.	Environment	Level 2	I,II
Introduction of E-STEM.	Environment, economic, and social	Level 2	I, II, III

The majority of the content has a level 2 for its level of sustainability, which indicates that the context for sustainability is scattered throughout the lesson and doesn't support all of the tasks (Vásquez et al., 2021). The components are unrelated to the context of sustainability. In the section on action-oriented knowledge, the new content focuses on knowledge that

has not yet taken the form of action, even until a change in action occurs (Jensen, 2002).

Questionnaire Result

The questionnaire was based on predetermined indicators covering training materials, training implementation, training objectives, training benefits, and training implementation. The training materials

cover a variety of topics, including content (table 3), pedagogy (table 4), assessment (table 5), and management of the implementation (table 6). The training institution designs teacher training materials according to the participant's demands. The training content still needed is related to attempts to prevent environmental damage (table 3). Even though this content is incredibly crucial in efforts to conserve the environment and achieve the SDGs (Leicht et al., 2018), training materials must be developed integrative by merging several disciplines and considering the interrelationships between the three elements of ESD (Vilmala et al., 2022; Zhou & Lee, 2022).

Six out of eleven teacher training program materials have not yet been given to the participant. The highest

average score given to participants emphasized establishing a connection between environmental and social issues. This indicates that the reciprocal relationship between humans and the environment must be considered. Still, to achieve sustainability, it is not only this focus that must be considered, but also how it relates to other aspects, such as the economy, and how it relates to other aspects. However, discussions regarding attempts to reduce environmental damage are barely discussed (table 3). The focus of the training is still restricted to knowledge about environmental education, which has not yet reached awareness, let alone made sustainable activities.

Table 3. The Content of Teacher Training Program Materials

The Content of Teacher Training Program Materials	Yes (%)	No (%)
Focus on student understanding	61.54	38.46
Discuss environmental knowledge	69.23	30.77
Oriented to discuss environmental damage issues/problems	76.92	23.08
Oriented to discuss actions to save the environment	78.46	21.54
Oriented to discuss mitigation efforts against environmental damage	53.85	46.15
Oriented to foster environmental awareness of students	64.62	35.38
Linking environmental aspects with economic aspects	75.38	24.62
Linking environmental aspects with social aspects	87.69	12.31
Linking content within the same discipline	66.15	33.85
Linking content in different disciplines	61.54	38.46
Complemented by context examples in everyday life	72.31	27.69
Average	69.79	30.21

In terms of how to teach training materials, hands-on activities were more prevalent (table 4). Even when the existing training materials are not adequately

prepared following specific learning theories, this affects how the materials can be provided and taught under the selected learning stages.

Table 4. Pedagogy of Teacher Training Program Materials

Pedagogy of Teacher Training Program Materials	Mean	Deviation Standard
The training materials contain measurable training objectives.	3.5	0.527
The training material is equipped with how to teach the material.	3.48	0.659
The training materials are arranged according to specific learning theories.	3.38	0.649
Student Hands-On activities complement the training materials.	3.57	0.581
The training materials are arranged according to certain learning stages.	3.45	0.633
The training materials are equipped with ways to teach the integration of one content with other content.	3.55	0.633
Average	3.50	0.61

The teaching materials should be developed by considering the learning theories that used and the learning stages that will be conducted in a classroom. Teaching materials for teacher training program should be equipped by the way how to teach the materials.

Table 5 outlines the common types of assessments conducted throughout training. The results indicate that the assessment tends to evaluate knowledge without evaluating the application of activities that must be implemented after finishing environmental education

teacher training. It is crucial to evaluate this implementation practice to determine the effect of teacher training on the professionalism of teachers.

Table 5. Assessment of Teacher Training Program Materials

Kinds of Assessment	Yes (%)	No (%)
Test	60	40
Questionnaire	70.77	29.23
Best Practice	64.62	35.38
Practice Implementation	1.54	98.46

When we already know that implementation practice following teacher training is crucial, it is essential to engage in this practice. Designing future training by focusing on the management of the application of training materials is an additional factor that must be considered (table 6). The training materials should be presented as beautifully as possible and are accompanied by clear illustrations/tables/graphics. All materials have already managed well.

Training implementation involves pre-training, training, and post-training. The results of the pre-

training questionnaire are presented in the table below. At the pre-training stage (table 7), it has been determined that pretests in the form of best practices and assignments in the form of PowerPoint and videos are rarely administered. As most respondents said no, it was determined that there were no explicit prerequisites for participation in the program. The data collected at the commencement of pre-training activities can be utilized to design future teacher training.

Table 6. Management of Implementation Teacher Training Program Materials

Management of Implementation	Mean	Deviation Standard
The content of the training material corresponds to the type of training.	3.62	0.487
The content of the training materials is distributed to the participants.	3.65	0.527
The training material's content is presented in a straightforward but meaningful manner.	3.57	0.495
Attractive training material module design.	3.54	0.657
The training materials containing pictures/tables/graphs are clearly illustrated.	3.49	0.635
The content of the training material is in line with expectations and can be implemented.	3.57	0.581
Average	3.57	0.564

Table 7. Pre-Training

Pre-Training	Yes (%)	No (%)
Pretest		
• Multiple Choices	73.44	26.56
• Essay	29.69	70.31
• Short Entry	17.19	82.81
• Best Practice	1.56	98.44
Pre-training task		
• Paper	21.54	78.46
• Poster	41.54	58.46
• Power Point	24.62	75.38
• Video	1.54	98.46
Participant prerequisite		
• Have previously attended relevant training	24.62	75.38
• It's an adiwiyata school.	26.15	73.85
• Science subject/environmental education teacher	29.23	70.77

Another question posed concerns the implementation throughout teacher education. This is examined to determine the most appropriate training approaches and strategies so that they are more meaningful for the instructor participants. Experimentation in the form of webinar training is the

most popular training approach (table 8). The majority of best practice activities consisted of creating video documentaries. Still, the creation of the action plan is unclear, and it is not sufficient to be equipped with change management skills and the ability to approach leaders and colleagues.

Table 8. During Training

Aspect	Yes (%)	No (%)
Teacher Training Method		
• Lecturing	40	60
• Discussion	75.38	24.62
• Project	69.23	30.77
• Experiment	86.15	13.85
Teacher Training Form		
• Workshop	40	60
• Webinar	75.38	24.62
• Field Study	69.23	30.77

Aspect	Yes (%)	No (%)
Best Practice Sharing Form		
• Direct Lecturing	30.77	69.23
• Documenter Video	60	40
• Field Study	49.23	50.77
• Poster Presentation	3.08	96.92
Creating Action Plan		
• Making a simple action plan	10.77	89.23
• There is guidance on making an action plan	64.62	35.38
• There is an example of an action plan	53.85	46.15
Change management Skills		
• Ability to adapt to change	66.15	33.85
• Ability to improve institutional effectiveness	47.69	52.31
• The ability to persist in implementing the results of the training either individually or in an organization	66.15	33.85
Ability to approach leaders, colleagues and persist during training		
• Ability to approach leadership	33.85	66.15
• Ability to approach colleagues	46.15	53.85
• Defensive ability	43.08	56.92

There was still a lack of participation in the post-training events since nearly half of the teachers had not even participated (table 9). This suggests that the current training activities will only be helpful during the training, while the post-training activities have not been

appropriately implemented. The monitor system of the individual participant is less conducted than that group participant. It indicates that individual awareness and action are hard to shape.

Table 9. Post Training

Post Training	Yes (%)	No (%)
The training program that is followed has post-training support.	50.77	49.23
Post-training monitoring is carried out periodically within a certain period.	58.46	41.54
The method of monitoring activities can be done online or offline.	53.85	46.15
Individual monitoring activities are carried out more often than in groups.	24.62	75.38
The training program ended with a post-test.	53.85	46.15

Interview Result

Interviews were conducted with some participants using semi-structured questions. The term "semi-structured interview" refers to a type of interview that frequently uses a guide (instead of a script), and even though there is some leeway for deviating from the direction, it is essential to cover the majority of the manual for comparison (Mann, 2016).

Training Course on Environmental Education for Sustainable Development/EESD (2017) and Regional Training Course on Environmental Education for Sustainable Development (2021)

The EESD training is an annual routine training organized by certain training institutions starting in 2009. The theme of the training activities is adjusted to the general theme that forms the basis for the training. The training materials provided in 2017 consisted of a sustainable development historical perspective and state of the art, learning and skill assessment on environmental science and sustainable development, a perspective of STEM education on environmental

science and STEM projects, while the training materials provided in 2021 consisted of historical perspective and state of the art, greenhouse effect, climate system, and climate change, teaching on climate change and biodiversity in the classroom, climate change and biodiversity, and promoting strategies for climate change.

The training is designed by discussing theory first and then practice. Before participants' practice, field studies and best practices related to training materials are carried out. Participants will be asked to develop learning tools from these activities and then practice the lesson plans as microteaching. The learning approach used is STEM, so participants are expected to be able to design STEM learning to overcome environmental problems in the form of environmental problem-solving solutions projects. The program evaluation was only related to the pretest-posttest of training materials without any further evaluation related to competency development or the assessment rubric of the participant's STEM project.

Post-training support does not exist due to limited funds. What was done was only to encourage participants to implement the results of training in learning at school for at least one meeting and report to the institution for appreciation so that participants could receive a certificate for 32 lessons. There is no assessment rubric in assessing the report on implementing the training results. What is checked is only whether the report is entered or not. Monitoring, supervision, and follow-up of participant training programs were also not carried out.

Adiwiyata School Environmental Care and Cultured Movement (2021)

The focus of this training program is to identify environmental problems and overcome environmental problems with various alternative solutions. The training materials consist of technical documentation of National Adiwiyata School Candidates and Independent Adiwiyata School Candidates, preparation of the Environmental Culture Care Movement Plan in Schools and the Identification of Environmental Potentials and Problems (PBLHS), Integrated PBLHS Movement Plans in the KTSP document (vision, mission, school objectives and self-development program), the number of aspects of the application of environmentally friendly behavior that are integrated into the lesson plan, and learning related to aspects of cleanliness, sanitation functions, and drainage; waste management, tree planting and maintenance, water conservation, energy conservation, and innovation related to the application of environmentally friendly behavior.

The importance of the environment is expected to grow and lead to more environmentally friendly behavior. Currently, environmental education is a part of the curriculum at 4,728 Indonesian schools (or 2 percent of all schools). Curriculum is designed to be applicable to all subjects. Learning tools for environmental education must be adapted to cover a range of topics, including climate change; biodiversity; waste treatment; cleanliness; sanitation function and drainage; waste management and tree planting; water conservation; energy conservation, and innovation in the implementation of environmentally friendly behavior. As a result, post-training support is actually not being provided by the training organizers, but rather by a third-party service. There is no standard for evaluating environmental behavior. Anecdotal reports are all that can be gathered about the school's environmental policies.

Energy Conservation Socialization for Adiwiyata Schools (2021)

This training program focuses on the content, and the form is a past webinar for all teachers, including

science teachers and teachers of other subjects. The material for the webinar talks about how to make and prepare the latest adiwiyata completeness draft, as well as how to save energy and how to manage how much energy is used in schools and how that compares to how it is managed in other office buildings. Knowledge of how to save energy is a big part of this training. The training materials haven't been integrated into learning. There is no organization of learning tools. There is also no evaluation of the training program, so how each school uses the program depends on the school. Do you want to follow the training materials or not? There is no post-training support in the form of follow-up plans, implementation, monitoring, or follow-up activities.

Environmental Chemistry Training Program for Adaptive Chemistry Teachers (2021)

The training program is content-oriented and focuses on how to implement a green school in the real world. These concepts and practices are included in the training materials, as well as organic/inorganic waste, recycling practices, patchwork waste, and the work environment. Though learning tools were not available, there was no session on how to teach concepts to students in training. Instead, teachers are given hands-on training to help them implement green school initiatives in their schools. According to this data, most activities associated with Green Schooling are carried out outside of regular school hours. Therefore, implementing the pre-and post-tests related to the training material is more important for evaluating the training program. In terms of training materials, no further action is being taken soon.

Environmental Education in Implementing the Adiwiyata Program (2019)

The curriculum's primary goal is to help students learn how to deal with environmental issues. Students will learn how to conduct environmental studies (the identification of potential problems), design an environmentally integrated school curriculum, implement an environment-based school curriculum, create products, engage in collaborative learning, give presentations in front of the class, use problem solving methods, utilize technology, apply scientific methods and write papers.

Teachers are required to create environmental lesson plans as part of this training program's sharing session on designing an integrated school curriculum. All teachers, not just science teachers, are involved in the creation of lesson plans and teaching aids. The best practices of environment-based learning are demonstrated in this training program. The evaluation is still restricted to the evaluation of the content and has not resulted in competence or expertise. Due to the

increased supervision or monitoring of the service that provides post-training support rather than training organizers, this type of support is not actually provided. Each adiwiyata school is required to submit a report on the administration of the school. In order to evaluate environmentally friendly behavior, there is no established standard to follow. Anecdotal reports are all that can be gathered about the school's environmental efforts.

Mizuiku Training (2020)

A program called "I Love Clean Water" (Mizuiku) has been running in Indonesia since 2019 to teach people how to protect clean water and the environment with help from the Ministry of Environment and Forestry of the Republic of Indonesia, integrate with the Adiwiyata Program in 2020. Principals and teachers can attend a workshop on caring for the environment and moving in a cultured way in schools. The Workshop (Train-the-Trainer) will be held online, and environmental experts and Mizuiku facilitators will be there to talk and answer questions.

The main focus of this training program is on how to make clean water and what can change how clean water is made. This training lasts for one month and is done online. During this training, each participant has to find problems in the school environment. Then, make a plan for activities, a list of priorities, goals for behavior and physical changes, who will be in charge, who will be involved, how much each activity will cost, and when it will be done. The main goal of changing people's habits is to make the world a cleaner place. There isn't a specific way to measure this change in behavior. The main goal of this training is to make people more aware of the environment. Teachers must also be able to make learning tools, which is a requirement of Adiwiyata schools, as part of this training. The teacher designs and makes their own learning tools, so they are not taught how to teach the content of the training materials. Teachers pay attention to the environment. Participants who have been to this training are expected to tell the teachers at their schools what they have learned. Each teacher has to come up with at least one lesson plan about the environment in a semester.

The hard part of this training program is coming up with ways to get teachers to care about the environment. How to improve teachers' skills through learning in the real world. There is no special rubric for how caring or skilled a teacher is. All that has been done so far is to watch how the people who live in the school act every day. The training program does not have any monitoring or follow-up after the training. Only at the end of the training is an evaluation done. When the task for training is done, the training program is over. There

is regular monitoring of the adiwiyata program, but it is not done by the organization that runs the training program.

Technical Guidance for Environmental Integration Learning Artifacts (2022)

Teachers will rotate through and correct each other's teaching aids as part of this workshop. In addition to environmental considerations, teachers' perspectives on free learning may also be taken into account when developing educational resources. It is hoped that this learning tool will serve as a new example of developing learning potential that is closer to school-based learning objects. As part of the Learning Toolkit, consideration must be given to the potential references to nearby objects in the area. Students will gain a better understanding of the region's potential as a result, which will help them develop their critical thinking skills in the classroom. Aside from environmental concerns, the training program also addresses issues related to health and safety. Participants are given examples of how to incorporate the surrounding environment into their learning throughout the course. The number of adiwiyata learning tools that can be produced can be used as an evaluation metric. Other bills take the form of reports on the preparation, implementation, and reflection phases of the legislative process itself.

Unfortunately, there is no post-training support in terms of plans for implementation, future activities, or follow-ups. It is only after this training that environmental integrated learning tools are monitored. The training organizers do not use a specific rubric for monitoring and evaluating activities.

Challenges and Strategy For Future Training Program

The majority of teachers are eager to enroll in various trainings. However, the consistency with which the training is followed must be improved. The most current activity focuses on acquiring specific knowledge without addressing how to use this knowledge in the form of actual actions that must be monitored and assessed. As a result of the training, participants emphasized the acquired knowledge and its learning application. However, it does not explain how to integrate this knowledge into real-time learning in the classroom, necessitating future teacher training to assist participants before, during, and after training.

Implementing learning at the forefront of environmental education must be done to increase students' awareness of the importance of the environment. It is hoped that after students gain knowledge and are aware of the importance of this knowledge, they will act in genuine efforts to protect the environment, save the earth, and maintain its sustainability of the earth. The outcomes of this teacher preparation program should be incorporated into

classroom instruction as well as extracurricular and extracurricular activities. The way the outcomes of teacher training are put into practice can take the shape of a project that the teacher will complete within a set amount of time. Students are involved in this project, which aims to promote understanding, awareness, and action on the significance of environmental protection. Students can also acquire sustainable competencies to develop future life skills further.

The necessary activities for teacher training must be well-designed and optimally prepared. All parties, including schools and stakeholders, are required to support the execution of teacher training programs. The school must be able to ethically and materially sponsor this training activity. Participating stakeholders must also completely support teacher training activities to provide teacher training that can simultaneously prepare students for the globalization era and protect the environment.

Conclusion

All training materials are still oriented to the environmental context when training for environmental education is considered in the context of sustainability. The focus of the training that has been conducted is still limited to environmental education knowledge, which has not yet reached awareness, much less produced sustainable practices. It is necessary to create future training programs focusing on knowledge, awareness, and action to achieve sustainability. The training program should be evaluated not only during implementation but after implementation to determine the effect of teacher training on the professionalism of teachers. All parties, including schools and stakeholders, must support the execution of teacher training programs. The school must be able to ethically and materially sponsor this training activity. Participating stakeholders must also completely support teacher training activities to provide teacher training that can simultaneously prepare students for the globalization era and protect the environment.

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analysis, E. and A.W.; investigation, E.; resources, E. and A.W.; E.; writing – original draft preparation, E.; writing – review and editing, E., A.W., I.K. and H.F.; supervision, A.W., I.K. and H.F. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflict of interest.

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