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Does the Current Generation have Adequate Environmental Literacy? Case Study of Prospective Biology Teacher

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ABSTRAK

Dari sudut pandang literasi lingkungan, calon guru perlu memiliki penguasaan domain pengetahuan, sikap, keterampilan kognitif, dan perilaku dalam latihan mengajar. Penelitian ini bertujuan untuk memvalidasi literasi lingkungan calon guru biologi setelah pembelajaran micro teaching. Instrumen pengukuran literasi lingkungan yang digunakan yaitu Environmental Literacy Assessment of Micro Teaching (ELAMt) yang berupa pertanyaan dalam bentuk pilihan ganda dan angket dengan skala likert 4 poin. Instrumen diberikan kepada 30 calon guru biologi kelas eksperimen dan kontrol. Penelitian ini menggunakan metode kuasi eksperimen dengan nonequivalent pretest-posttest control group design. Terdapat 3 kegiatan yang dilakukan yaitu yaitu Focus Group Discussion (FGD), mengembangkan instrument, dan pengukuran literasi lingkungan. Hasil penelitian menunjukkan bahwa latihan mengajar pada micro teaching memberikan efek besar terhadap peningkatan literasi lingkungan calon guru biologi khususnya pada domain pengetahuan dan keterampilan kognitif literasi lingkungan. Di sisi lain, latihan mengajar belum mampu meningkatkan domain sikap dan perilaku positif calon guru biologi terhadap lingkungan secara signifikan. Selama ini micro teaching lebih dominan pada penguasaan keterampilan mengajar dan kurang mengarah pada pengembangan afektif calon guru biologi. Adanya integrasi literasi lingkungan dalam praktik mengajar calon guru biologi merupakan implikasi dari penelitian ini. Secara keseluruhan dapat disimpulkan bahwa literasi lingkungan sebaiknya dapat diintegrasikan pada seluruh mata kuliah sehingga dapat membudaya dalam kehidupan sehari- hari calon guru biologi.

ABSTRACT

From an environmental literacy perspective, prospective teachers need to have mastery of the domains of knowledge, attitudes, cognitive skills and behavior in teaching practice. This research aims to validate the environmental literacy of prospective biology teachers after learning micro teaching. The environmental literacy measurement instrument used is the Environmental Literacy Assessment of Micro Teaching (ELAMt) in the form of questions in the form of multiple choices and a questionnaire with a 4-point Likert scale. The instrument was given to 30 prospective biology teachers in experimental and control classes. This research uses a quasi-experimental method with a *nonequivalent pretest-posttest control group design*. There were 3 activities carried out, namely Focus Group Discussion (FGD), developing instruments, and environmental literacy measurements. The results of the research show that teaching practice in micro teaching has a big effect on increasing the environmental literacy of prospective biology teachers, especially in the domain of environmental literacy knowledge and cognitive skills. On the other hand, teaching training has not been able to significantly increase the domain of positive attitudes and behavior of prospective biology teachers towards the environment. So far, micro teaching has been more dominant in mastering teaching skills and less focused on the affective development of prospective biology teachers. The integration of environmental literacy in the teaching practices of prospective biology teachers is an implication of this research. Overall, it can be concluded that environmental literacy should be integrated into all courses so that can be ingrained in the daily lives of prospective biology teachers.

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1. INTRODUCTION

Education in higher education functions to develop self-competence in cognitive, skills and attitudes (Møgelvang et al., 2023; Nkaizirwa et al., 2023). On the other hand, prospective teachers also need to be encouraged to have an attitude of wanting to preserve positive cultural values and create life changes for the better (Fernández, 2010; Marlina, Suwono, Yuenyong, Ibrohim, & Hamdani, 2023). The process of cultural transmission can take place in education because culture is something that can be taught and education itself is a process of acculturation (Abakah et al., 2023; Aydin et al., 2015). From the point of view of changing the direction of life, universities play an important role in developing the knowledge, skills and attitudes of prospective teachers (Chang, 2024; Gess-Newsome & Lederman, 1991). Education in higher education, especially in micro teaching courses, is considered not optimal in carrying out the function of developing the knowledge, skills and attitudes of prospective teachers, especially in preserving the environment (Nkaizirwa et al., 2023). There are two weaknesses identified in lectures in higher education, especially at the Education Institute for Educational Personnel (LPTK). First, education in LPTK is indicated to have not been able to play a role as a forum for cultural transmission which consists of three components, namely spiritual which is defined as human relations with God, social which is defined as human relations with humans, and natural which is defined as human relations with the environment. This indication arises because cultural values are seen as stopping at the concept level so that they have not provided practical benefits to the community.

Environmental literacy has four domains of environmental literacy (Møgelvang et al., 2023). The four domains are knowledge, disposition/attitude, cognitive skills and behavior. Environmental literacy is divided into five types of knowledge that must be addressed in response to environmental situations or problems. The five elements are knowledge about physical and ecological systems, knowledge about social, cultural, and political systems, knowledge about environmental problems, knowledge about alternative solutions to environmental problems, and knowledge about community participation and action plans for environmental problems (Kumar et al., 2024; Wang et al., 2021). In the context of environmental literacy, the attitude domain has five elements described as follows sensitivity, attention and concern for the environment, personal responsibility, self-efficacy, and motivation and intention to act (Nalipay et al., 2023; Ram et al., 2023). In the context of environmental literacy, the cognitive skills domain includes the ability to identify environmental problems, ask relevant questions related to the identification of environmental problems, analyze environmental problems, investigate environmental problems, evaluate and personally assess environmental problems, use evidence or data and knowledge to solve environmental problems, and develop and evaluate plans to solve environmental problems. The behavioral domain in environmental literacy is defined as involvement in behavior and habits as individuals or groups to try to solve current environmental problems and prevent new problems from occurring (Gezer, 2015; Møgelvang et al., 2023; Tasgin & Dilek, 2023).

Some of the findings that occur in prospective teachers today are a shift in cultural values, especially in natural concepts that have an impact on environmental problems (Abidin et al., 2020; Lederman et al., 1994). This illustrates that environmental literacy still needs to be improved. Environmental literacy is the link between natural and social systems about knowledge, positive attitudes and behaviors towards the environment, and skills to solve environmental problems (Gaál & Becsákné Tornay, 2024; Rescia et al., 2023). The preliminary research findings as reported revealed that the overall environmental literacy of prospective teachers in Pontianak was in the moderate category (Marlina, Suwono, Yuenyong, Ibrohim, Mahanal, et al., 2023). These results also showed a gap between the domains of environmental literacy. The research findings indicate that LPTK has not been able to empower prospective teachers' environmental literacy in a planned and holistic manner (Charalambous & Praetorius, 2022). The research findings are contrary to the goals of education in the 21st century (Marlina, Suwono, & Yuenyong, 2024; Mufaridah & Nurkamilah, 2023). Education for the 21st century mandates that students from elementary school to university levels should be able to develop environmental literacy in order to respond to global changes so as to ensure human survival (Sailer et al., 2021; Schmitz et al., 2024). Based on the viewpoint of the gap between domains, LPTK should be able to empower all domains of environmental literacy in an integrated manner to achieve the operational category through environmental education and professional training. Based on the preliminary study, information was also obtained that the role of LPTK to develop the knowledge, skills and attitudes of prospective teachers is also indicated to have not taken place optimally (L. Liu & Tobias, 2024; Sailer et al., 2021). This indication appears especially in the knowledge domain. Preliminary research conducted by analyzing the Environmental Knowledge course scores in 2023 showed that out of 67 prospective teachers, all prospective teachers have not been able to show real action in preserving the environment (Law et al., 2023). This finding shows that biology learning has not been done to provide meaningful concept understanding to students so that this understanding has

not been reflected through real action in everyday life (Borti, 2023; Ching et al., 2020). There is a need for innovation in teaching practices that integrate environmental literacy for prospective biology teachers.

There have been several studies on environmental literacy in prospective biology teachers. Most recently it was reported that in LPTK environmental literacy became one of the assessments to measure the achievement of learning objectives in environmental knowledge courses (Mambali et al., 2024). This is a new breakthrough because affective aspects have been included in the assessment of the final learning objectives that prospective teachers must master (Braaten et al., 2022; Fránquiz & Leija, 2023; Rainey et al., 2020). Environmental literacy aspects consisting of four domains are not enough to be instilled in just one course. This research is needed to integrate environmental literacy in allied courses and also in professional courses such as micro teaching so that environmental literacy can be cultured and rooted in the daily lives of prospective teachers. This is important to do because environmental conservation needs to be initiated by prospective teachers who will one day become teachers and convey the importance of protecting the environment to all the nation's young generations (Håkonsen & Hedenrud, 2024; Ripollés & Blesa, 2024).

Prospective biology teachers are people who have the potential to foster a culture of environmental care because biology has a branch of environmental biology that is in line with the concept of environmental literacy and the cultural value of environmental conservation (Gezer, 2015; Michalsky & Schechter, 2013; van Driel et al., 2021). Students who follow biology learning are more literate to the environment than those who follow other science subjects (Marlina, Suwono, Yuenyong, Ibrohim, & Hamdani, 2023). Through teaching exercises that are planned to preserve the environment and foster a sense of love for the environment, learning activities and materials can be consciously and intentionally directed to strengthen the value of environmental literacy. Micro teaching is considered relevant in teaching and educating prospective teachers in order to train sensitivity to the environment (Nasution et al., 2023). Micro teaching is a vehicle for the transformation of prospective teachers from mastery of knowledge to the realization of experience in science teaching practice so that it can provide science content that is theoretical to be practical. The relevance is also supported by the statement that learning science (including biology) in the context of community life requires exploration in the form of lesson plans that care about environmental principles.

This research aims to validate the environmental literacy of prospective biology teachers after learning micro teaching. The exploration of the environment in micro teaching practice is expected to help prospective teachers to connect the subject matter to be taught with the context of everyday life. This connection can make it easier for prospective teachers to understand and interpret the subject matter. Exploration of the surrounding environment used in the planning and implementation of micro-teaching is also expected to bridge prospective teachers to interpret that teaching is not only to master concepts but also needs to encourage the formation and development of environmental care attitudes.

2. METHODS

The research method used in this research is quasi-experimental with a quantitative approach. Quasi-experimental is an experimental design that is carried out without randomization, but involves assigning participants to groups. A quantitative approach is considered very appropriate because it can compare control and experimental groups with different learning strategy treatments. The data obtained in this research can be classified into primary data and secondary data. Primary data refers to data collected directly from the results of micro teaching lectures. Secondary data includes information received through interviews and written responses from participants.

This research used quasi-experiment with non-equivalent pretest-posttest control group design (Paramasivan et al., 2024). Environmental literacy was measured using multiple choice test questions and questionnaires. Clearly the development of the ELAMt instrument is shown in Figure 1.

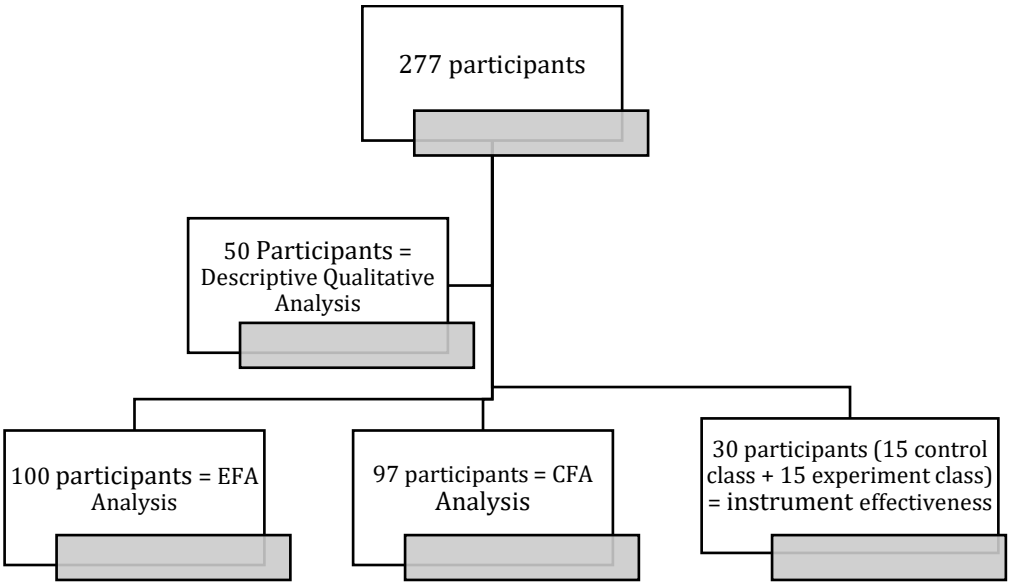

Figure 1. Data Collection in Research

Multiple choice questions and questionnaires were prepared based on the environmental literacy domain which includes the domains of knowledge, attitudes, cognitive skills, and behavior. The environmental literacy instrument developed by the researcher is known as the Environmental Literacy Assessment of Micro Teaching (ELAMt). The development of this instrument used 277 participants consisting of 109 participants from Java, 97 from Kalimantan, and 41 participants from other islands (Sulawesi, Sumatra, and Papua). The instrument was packaged in the form of a google form and distributed to prospective biology teachers. The data used were data from 50 participants used to calculate descriptive analysis, data from 100 participants used for Exploratory Factor analysis (EFA), and data from the next 97 participants used for Confirmatory Factor Analysis (CFA). A total of 30 participants were involved in the initial and final measurements of ELAMt implementation in micro teaching. Participants involved in measuring the effectiveness of teaching practice in micro teaching on environmental literacy are prospective biology teachers who take micro teaching courses in the 2022/2024 academic year. These participants were determined by purposive sampling technique. The form of the instrument in ELAMt is in the form of multiple choice questions and a questionnaire with a 4-point Likert scale. The environmental literacy measurement instrument consists of 20 knowledge domain items and 10 cognitive skill domain items in the form of multiple choice questions and 10 questionnaire items each for the attitude and behavior domains. The effectiveness testing stage uses two class groups, namely the control class in the environmental knowledge course and the experimental class in the micro teaching course. The control class in this study is a negative control class and is not accompanied by a positive control. The research design is presented in Table 1.

Table 1. Research Design

Subject	*Pretest*	Treatment	*Posttest*
Group 1	O_1	X_1	O_2
Group 2	O_3	X_2	O_4

Notes:
O_1 : *pretest* experiment class
O_2 : *posttest* experiment class
O_3 : *pretest* control class
O_4 : *posttest* control class
X_1 : micro teaching
X_2 : environmental science

All dominant environmental literacy data were analyzed inferentially with the help of the SPSS program. The stages carried out are 1) conducting a prerequisite test, namely the normality test using the One Sample Kolmogorov Smirnov Test and the homogeneity test using Levenes's test of Equality of Error Variance, both tests with a significance level of 0.05, 2) if all data are normally distributed and homogeneously distributed, followed by ankova test with a significance level of 5%, and 3) drawing

conclusions from the results of the ankova test. If the significance value of the p-value is less than 0.05, there is a difference in the environmental literacy of prospective biology teachers in the experimental and control classes. If the significance p-value of the pretest is less than 0.05 then the final ability is not a pure result of the micro teaching intervention given and the pretest does affect the environmental literacy of prospective biology teachers.

3. RESULT AND DISCUSSION

Results

Data on the effect of micro teaching on environmental literacy of prospective biology teachers were analyzed in three stages. The first stage is the prerequisite test in the form of normality test and normality test shows p value (0.590) > α (0.05) so that the data distribution is categorized as normal. The second stage uses the homogeneity test. The data homogeneity test shows a p value (0.663) > α (0.05) so that the data variants are categorized as homogeneous. The third stage is 1-way Anakova analysis. The results of the 1-way ANOVA test showed that the p value (0.000) < α (0.05). This finding illustrates that there is a significant difference in environmental literacy between the experimental and control classes. Cohen's d test results showed a value of 0.63. A summary of the results of descriptive analysis and ANOVA of environmental literacy is shown in Table 2.

Table 2. Summary of Descriptive and Anakova Analysis Results of Environmental Literacy

Class	N	*Pretest*	*Posttest*	SD	correction	*p*	*Cohen's d*
Experiment	15	117.89	120.12	7.27	119.73	0.000	0.63
Control	15	117.03	113.52	8.35	113.56		

This value indicates that micro teaching of biology teacher candidates has the effect of increasing environmental literacy. Data analysis continued by revealing the effect of micro teaching on each environmental literacy domain. The details of the research results on each domain of environmental literacy are shown in Table 3.

Table 3. Summary of Descriptive and Anakova Analysis Results of Environmental Literacy in 4 Domains

Domain	Class	N	*Pretest*	*Posttest*	SD	correction	*p*	*Cohen's d*
Knowledge	Experiment	15	12.59	14.14	5.33	7.85	0.000	0.75
	Control	15	12.34	13.44	5.96	6.01		
Behavior	Experiment	15	8.62	11.19	2.43	51.48	0.000	0.83
	Control	15	8.56	10.15	1.85	49.95		
Cognitive	Experiment	15	16.50	18.24	4.72	20.44	0.068	0
	Control	15	16.32	18.12	7.88	18.41		
Attitude	Experiment	15	19.18	20.42	2.37	60.13	0.068	0
	Control	15	19.01	21.67	2.83	59.33		

The results of the 1-way Anakova test as presented in Table 3 show that the p value (0.000) < α (0.05). This finding illustrates that there is a significant difference in the domain of knowledge and attitude of environmental literacy between the experimental and control classes. The results of Cohen's d test showed a value of 0.75 and 0.83. These values indicate that micro teaching has a major effect on improving the knowledge domain and attitude of environmental literacy. The results of 1-way Anakova test of cognitive and behavioral domains as presented in Table 3 show that the p value (0.068) > α (0.05). This finding indicates that there is no significant difference in the behavioral domain between the experimental and control classes so that teaching practice in micro teaching is said to have no significant effect on improving the cognitive and behavioral domains of environmental literacy.

Discussion

The results showed that micro teaching is effective to improve the environmental literacy of prospective biology teachers. The effectiveness is proven because the application of micro teaching provides a significant increase in environmental literacy scores. This finding indicates that micro teaching can empower the environmental literacy of prospective biology teachers. Empowerment of environmental literacy through micro teaching includes all domains of environmental literacy, namely the domains of knowledge, attitudes, cognitive skills, and behavior. This is because the four domains of environmental

literacy are an integral unit. Empowerment of environmental literacy must be done in an integrated manner so that prospective biology teachers can reach the operational category. The operational category is defined as the integration of all environmental literacy domains so that prospective biology teachers not only have knowledge but can also apply their knowledge to prevent and overcome environmental problems. Each domain of environmental literacy has a significant contribution to empowering environmental literacy as a whole.

The results showed that there were significant differences in knowledge domain scores and cognitive skills between the experimental and control classes. This finding shows that micro teaching is effective to improve the knowledge domain and cognitive skills of prospective biology teachers related to environmental aspects. Previous research has also identified a relationship between cognitive knowledge and environmental literacy. However, it has not identified any improvement in the skills of prospective biology teachers (L. Liu & Tobias, 2024; Nalipay et al., 2023). Knowledge domain and cognitive skills are interconnected domains of environmental literacy (Arif et al., 2022; Maurer & Bogner, 2020; Svensson et al., 2022). This relationship can be explained through skill acquisition theory. The theory explains that the skill acquisition process has three stages. The first stage, cognitive stage, is the stage when a person receives information about a knowledge. The second stage, associative stage, is the transition stage of converting knowledge into procedural form. The third stage, autonomous stage, is the stage of applying knowledge directly and precisely. This explanation indicates that cognitive skills are constructed by the knowledge a person receives so that they are able to apply their knowledge in an operational context (Buser et al., 2024; Hvidman et al., 2024). The relationship is also reinforced by research that states there is a significant relationship between the knowledge domain and cognitive skills of environmental literacy (Gilmore et al., 2024; Lopez et al., 2024).

Learning activities by linking subject matter with real-life contexts help prospective biology teachers to get a better learning experience (Abidin et al., 2020). Through this learning experience, biology teacher candidates gain new knowledge, can solve problems faced and develop their thinking skills (Yüce, 2023). Learning integrated with local culture can increase students' knowledge and skills to solve environmental problems. The contextual approach is a multidisciplinary approach that specifically influences the cognitive skills domain. The multidisciplinary approach provides opportunities for prospective biology teachers to learn according to the context of their environment from various perspectives. In micro teaching, the multidisciplinary approach is carried out by providing flexibility to prospective biology teachers to connect the natural aspects of the subject matter with socio-cultural aspects. This connection is a fundamental aspect to prepare prospective biology teachers to be able to solve various current real-world problems (Gürbüz et al., 2010; Koseoglu, 2012; Schmäing & Grotjohann, 2022). This process is expected to increase the complexity of thinking of prospective biology teachers because they have to elaborate their understanding of subject matter and socio-cultural systems in life (Nkaizirwa et al., 2023).

In relation to the cognitive skills domain, one component of which is critical thinking skills, the argument is in line with several studies that have been conducted previously. Learning that connects the natural and social context of the local environment improves the critical thinking skills of prospective biology teachers (Tuncer & Ozeren, 2012; Zhou et al., 2023). Multidisciplinary learning is able to develop critical thinking and problem-solving skills of prospective biology teachers. Science learning integrated with local potential improves critical thinking skills of biology teacher candidates. Biology learning based on socio-biological cases improves critical thinking skills of biology teacher candidates (Hubbard & Odebiyi, 2021). The next aspect that significantly affects the difference in knowledge domain scores and cognitive skills between experimental and control classes is the principles adapted in micro teaching. The first principle is the principle of inquiry learning(C. Liu et al., 2021; Schaal et al., 2012). The activity of biology teacher candidates begins with formulating a learning plan based on real-life phenomena. Biology teacher candidates then explore to find an environment-based lesson plan. Exploration is carried out in the environment outside the classroom with various methods such as literature study, observation, and interviews. In determining the method, prospective biology teachers are given the freedom to choose and implement exploration methods through the guidance of mentoring lecturers. The flexibility given is expected to increase the learning independence of prospective biology teachers. Learning independence in the learning process has a positive effect on the knowledge and ability of prospective biology teachers to apply their knowledge (Moutinho et al., 2015).

The second principle adapted by micro teaching is the principle of cooperative learning. Biology teacher candidates are facilitated to work in groups during learning activities. In this case, although biology teacher candidates do not work individually, they still have individual responsibilities in the group. Working together in groups increases the social interaction of biology teacher candidates which has a positive influence on learning productivity (Borrachero et al., 2019; McNew-Birren & van den Kieboom, 2017).

Social interaction between biology teacher candidates has an important role to improve retention and thinking skills of biology teacher candidates because there is a process of exchanging ideas between biology teacher candidates. Cooperative learning increases the retention of biology teacher candidates (Adams et al., 2022; Møgelvang et al., 2023). Cooperative learning improves the thinking skills of prospective biology teachers. These findings indicate that cooperative learning principles in micro teaching have a positive impact on the knowledge domain through increased retention and cognitive skills through increased thinking skills of prospective biology teachers.

The results showed that there was no significant difference in attitude and behavior domain scores between the experimental and control classes. This finding illustrates that micro teaching has not significantly influenced the attitudes and behaviors of prospective biology teachers towards the environment. In relation to the behavior domain, it can be assumed that there is also a similar inconsistency considering that several research reports state that there is a significant relationship between attitude and behavior towards the environment. The inconsistency of the findings of this study with the findings of previous research and literature review is suspected because there are external factors outside micro teaching that more dominantly influence the attitudes and behaviors of prospective biology teachers towards the environment. The external factors that are thought to influence the findings of this study are the duration of the research implementation and the socio-cultural circumstances of prospective biology teachers.

The research was conducted for six months from August 2023 to January 2024. During the research, prospective biology teachers practiced teaching biology lessons 3 times a meeting. The duration of the research time is indicated to be insufficient to form or at least change the attitudes and behavior of prospective biology teachers towards the environment through micro teaching courses. The formation of a positive attitude towards the environment is a long-term process. The attitude that a person has is the result of construction and crystallization between thoughts, behavior, and feelings that occur in their social environment (Mamolo et al., 2022; Maurer & Bogner, 2020, 2020). Furthermore, it is explained that when an attitude has been strongly embedded in a person, the attitude tends to be resistant to change. Significant changes in attitude and behavior towards the environment are possible over a long period. In this case, there are two indications, namely the attitude towards the environment is an attitude that has been embedded quite strongly in prospective biology teachers who are influenced by the social environment so that it is not easy to change, and the social environment of prospective biology teachers does not support the empowerment of positive attitudes and behavior of prospective biology teachers towards the environment.

The next external factor is the socio-cultural situation of prospective biology teachers. Some socio-cultural aspects that influence the environmental literacy of prospective biology teachers include economic status, access to information, and socio-demographic circumstances (Braaten et al., 2022; Rainey et al., 2020). These socio-cultural factors are indicated to have an influence on shifting the meaning of culture in prospective biology teachers. This causes the culture in micro teaching lectures to not be able to significantly change the attitudes and behaviors of prospective biology teachers towards the environment. If the socio-cultural aspects are reduced, then in the context of this study, the socio-demographic conditions related to the place of residence of prospective biology teachers have the most dominant influence on shifting cultural values (Maurer & Bogner, 2020; Ripollés & Blesa, 2024). These socio-demographic conditions can have a dominant effect on access to information and the economic status of parents, thus influencing the environmental literacy of prospective biology teachers. This research has several weaknesses, including the lack of prospective teacher participants involved, the lack of interviews conducted, and the class observation time felt to be not long enough. It is hoped that future research will involve more than 30 prospective teacher participants so that the data provided will also be more valid and reliable. It is also hoped that the number of classes observed will be more than 3 treatments so that we can determine the best treatment with various comparisons to determine the appropriate method for increasing the environmental literacy of prospective biology teachers in micro teaching.

Prospective biology teachers' concern for the environment is not only an obligation for themselves, but also for faculty of teacher training and education. Prospective teachers who have knowledge about the environment develop a positive attitude towards the environment and care more about the surrounding environment (Marlina, Suwono, Yuenyong, et al., 2024). Instilling the value of caring for the environment can be done in various ways, one of which is by teaching prospective teachers to think critically about the environment by designing teaching modules for environmentally based subjects that have a message about preserving the environment. This can help in developing prospective teachers' cognitive skills, which is one of the domains of environmental literacy. Environmental education activities are actually carried out to increase the environmental literacy of prospective biology teachers. The implications of this research are that prospective teachers can behave, be responsible, care and be aware of the existence of the environment.

Teaching and educational science faculties should validate the environmental literacy status of prospective teachers in various ways, one of which can be measured based on the criteria for environmental literacy components, namely: knowledge, cognitive skills, attitude and responsible behavior towards environment (Behavior).

4. CONCLUSION

In general, teaching practice in micro teaching is concluded to have a major effect on improving the environmental literacy of prospective biology teachers, especially in the domain of knowledge and cognitive skills of environmental literacy. On the other hand, teaching practice has not been able to significantly improve the domain of positive attitudes and behaviors of prospective biology teachers towards the environment. Overall, it can be concluded that environmental literacy should be integrated in all courses so that environmental literacy can be cultivated in the daily lives of prospective biology teachers. Therefore, micro teaching is still recommended to be a means of improving the environmental literacy of prospective biology teachers.

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