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Communication Education in Indonesia-Timor Leste Border Schools in Building Ecological Awareness and National Resilience

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ABSTRACT

This study aims to conduct and observe the implementation of communication education in schools in the Indonesia-Timor Leste border area, as well as analyze its influence on the formation of students' ecological awareness in strengthening national resilience and national defense attitudes, and can contribute to the development of communication education models based on ecological and national values in border areas. This study used a qualitative approach with a case study design where three selected schools are Surya Catholic High School in Timor's capital city, Dili. The number of participants in this study was thirty, including school administrators, teaching staff, and their students. Data were collected by observations and in-depth interviews and analyzed using a qualitative approach, which is data reduction, data display, and conclusion drawing (triangulation). The learning interaction model of dialogical and participatory fostered the contextual learning related to environmental ecology and the incorporation of national values and morality in the community life. The studies are innovative for their approach in integrating communication education, ecological awareness, and national resilience in socio-cultural field border area schools and contextual and participative learning processes.

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INTRODUCTION

To develop character, environmental awareness, and nationalism, education should not only focus on knowledge transfer but must also involve active communication practices in the learning process. Communication practices have an important role in shaping students' awareness, reflection, and social involvement on various environmental and national issues. According to Ghazian and Lortie (2024), sustainability-based education needs to integrate environmental issues with social dimensions, justice, and community resilience so that students are able to understand the relationship between environmental conservation and social life. In the Indonesia-Timor Leste border area, schools have a responsibility to instill an understanding of environmental sustainability while strengthening the spirit of nationalism and civic awareness of students. Through participatory dialogue and communication based on local contexts, students are encouraged to understand environmental sustainability issues as well as the importance of natural resource management in maintaining the social stability of border communities.

Dialogical and reflective learning practices can build students' active involvement in facing social and environmental problems in their communities (Ogodo, 2026). In addition, the use of participatory learning methods, such as collaborative projects and digital-based learning, is considered to be able to increase environmental literacy and community participation in sustainable development (Castrillo & Azcárate, 2024). In the context of civic education, the integration of character education, religious moderation, and national defense education has also been proven to contribute to the strengthening of students' nationalism and national identity (Solechan et al., 2024). Furthermore, civic education integrated with sustainable development education helps students understand the relationship between social responsibility, ecological awareness, and engagement as active citizens (Damiani & Fraillon, 2025). Therefore, schools play an important role in preparing future generations equipped with ecological literacy and national awareness for the sake of environmental conservation and maintaining the territorial integrity of the country (Atikawati et al., 2024; Chavez-Miguel et al., 2022).

Faganel & Kovač (2025) state that learning in a natural environment through a hands-on approach encourages critical thinking and discussion among students and teachers on a variety of topics. In addition, Parker and Prabawa-Sear (2020) stated that social interaction between students with different backgrounds in the classroom environment facilitates mutual understanding, which in turn can create harmony and prevent conflicts between nations, including Indonesia and Timor Leste. Although many gains have been made in border education in terms of fostering socio-cultural and ecological dialogue, some long-term issues still need to be addressed.

In international border areas, research shows that educational practices and methodologies still lack appropriate learning infrastructure, inadequate basic resources for learning, and adequate learning models within contextual frameworks inspired by the local ecological and social environment (Grundy et al., 2022; Pereira et al., 2025). Learning programs are often based on outdated models of teaching approaches that favor a teacher-centered approach. In this approach, local environmental issues are hardly optimally utilized in meaningful learning. Border communities face various challenges for sustainability, including land degradation, drought, misuse of water and land resources, and land use change (Halder et al., 2025; Sharma et al., 2025).

For environmental and sustainability education, research shows that participatory communication-based environmental education methodologies result in significant ecological awareness and increased student engagement when compared to receiving comparable information in a conventional instructor-centered teaching format (Wallace et al., 2020). Meanwhile, strengthening national identity by developing educational facilities in border areas has proven difficult due to the high level of cross-border socio-cultural dynamics that play a role and the lack of effectiveness in fostering national ideals in school programs in these areas (Pereira et al., 2025). Environmental and participatory learning approaches are often emphasized, but there are specific gaps that must be filled in relation to improving communication education to increase ecological and socio-political awareness in border areas. The interaction of ecological, socio-cultural, political, and identity dynamics within boundary environments raises new questions with respect to how communication strategies can be integrated in educational strategies to improve ecological literacy and national identity.

Previous research has typically investigated these factors independently of each other (Alders et al., 2020; Andersen & Prokkola, 2022; Dascil, 2025). For this reason, it is important to explore issues regarding the improvement of communication education that combine environmental awareness strategies and national resilience perspectives (Beacco et al., 2016; Minett et al., 2022; Ting-Toomey & Dorjee, 2018). The current research seeks to investigate an innovative renewable contextual learning framework that combines communication education, environmental education, and national resilience perspectives to raise socio-political and

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ecological awareness in border schools about the unique, ecologically sensitive, cultural, and geopolitical borders between Indonesia and Timor Leste. This study explores the role of communication education in Indonesia-Timor Leste border primary schools in instilling ecological awareness and fostering national sensitivity and resilience through contextual and participatory approaches in student learning in the social and environmental environment of border areas.

METHOD

This research was conducted using a qualitative approach with a case study method (Kowalski et al., 2024; Lim, 2025). The purpose of this study is to describe and explore in depth the meaning of educational experiences and communication processes for ecological awareness and national resilience in social, cultural, geographical, and cross-border contexts. The population of this study is all schools on the border of Indonesia and Timor-Leste, in East Nusa Tenggara Province, specifically in the Timor Region.

The sample used in this study was selected by the purposive sampling technique. The sample selection criteria are schools located on the border of Indonesia and Timor-Leste and/or having cross-border socio-cultural characteristics. Learning activities in schools include environmental education and strengthening national values. The sample population of this study consists of 3 high schools. The number of respondents in this study was 30 people. They are 3 principals, 9 teachers, and 18 students who are actively involved in learning activities and related school activities as well as participating in environmental education and national values.

The data collection techniques used in this study include classroom observation to determine learning activities, communication interactions, and student participation during the learning process, as well as in-depth interviews conducted with teachers and students. This study involved several respondents consisting of students and teachers in schools in the Indonesia-Timor Leste border area. The research instruments used were observation sheets and interview guidelines designed to explore environmental awareness, communication practices, and students' nationalistic values in the context of border communities. In addition, several answers and responses from respondents were also presented in this study to strengthen the findings and provide empirical evidence regarding students' experiences and views during the learning process.

The data analysis technique used in this study is a qualitative data analysis technique involved in the collected data, namely data reduction, data presentation, and systematic conclusion drawing to reveal the patterns, relationships, and meanings of the phenomenon being studied (Laari, 2025). Horizontalization was carried out by finding the results of the study conducted and using source triangulation techniques and triangulation methods to obtain a more complete picture of the role of communication education in building ecological awareness and national resilience in schools in the Timor Region with socio-cultural characteristics that are closely related to the border area of Indonesia and Timor-Leste. The following is a flow diagram of the research conducted. The sample used in this study was selected by the purposive sampling technique. The sample selection criteria are schools located on the border of Indonesia and Timor-Leste and/or having cross-border socio-cultural characteristics. Learning activities in schools include environmental education and strengthening national values (Kessman & Mueller-Seeger, 2025).

The data collection techniques used in this study are observation to find out learning activities and communication interactions and how students are in the classroom as well as in-depth interviews to find out communication education experiences and strategies. The data analysis technique used in this study is a qualitative data analysis technique involved in the collected data, namely data reduction, data presentation, and systematic conclusion drawing to reveal the patterns, relationships, and meanings of the phenomenon being studied (Lewis, 2015). Horizontalization was carried out by finding the results of the study conducted and

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using source triangulation techniques and triangulation methods to obtain a more complete picture of the role of communication education in building ecological awareness and national resilience in schools in the Timor Region with socio-cultural characteristics that are closely related to the border area of Indonesia and Timor-Leste. The following is a flow diagram of the research conducted.

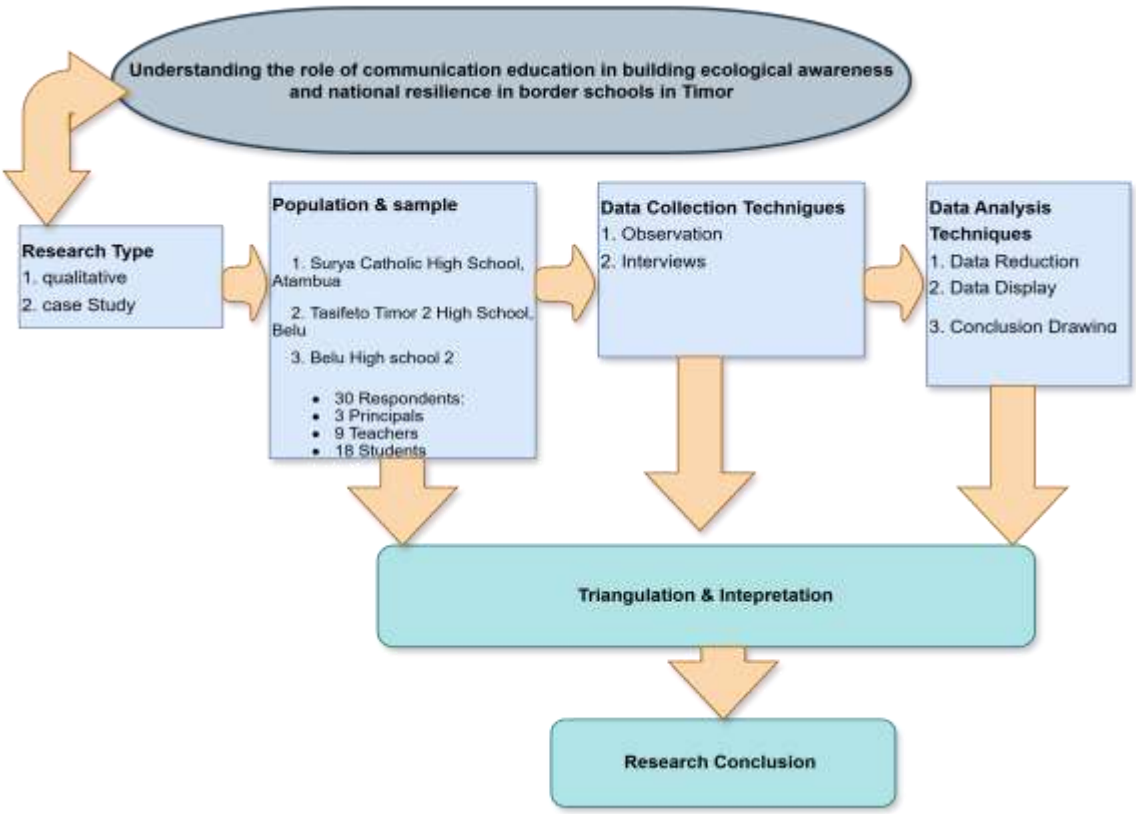

Figure 1. Research Flowchart

RESULTS AND DISCUSSION

Result

This qualitative research examines how schools in Indonesia socialise students to care for the environment and have national pride. The research was conducted in three schools in East Nusa Tenggara, one Catholic senior high school and two state-owned senior high schools/vocational schools. The principal, teachers and students were interviewed to obtain information on how students learn to care for the environment and have national pride and to find out what methods schools use to preserve local customs. In this research, learning is not limited to the classroom. In carrying out school activities and events, students and teachers also learn from each other. The communication between students and teachers in learning to care for the environment and having national pride through conversation in which students can share their ideas and opinions about issues related to the environment and social issues is important. In addition to learning from books, schools are also places in which students learn from their peers and community. Through conversation and collaboration in learning to care for the environment and having national pride, students can gain awareness of their responsibility to the environment and to their community, which will contribute to strengthening the country and making it more resilient. Schools play a significant role in fostering students' awareness of their responsibility for caring for the environment and the community, which will lead to a better future for all.

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Schools that implement the Independent Curriculum have more freedom to organise the learning process to better suit the social context and environment in which students live. This curriculum structure allows teachers to connect the lessons that they teach to the reality of their students' lives. High School Tasifeto Timur 2 in the Timor Region utilises the Merdeka Curriculum to create meaningful learning experiences for its students. "The Merdeka Curriculum is designed to allow teachers to create lessons relevant to the environment and the lives of the people in Timor," explained the school's main interviewee. Through the Merdeka Curriculum, the school aims to not only educate its students to be intelligent but also to have good character and a sense of responsibility to address the issues of the community around them. This is important because learning is not a mere academic exercise but also a means to cultivate students who are able to apply what they have learnt in life.

Teachers at Surya Catholic High School in Atambua make eco-issues a part of teaching and learning. Their teaching materials and approaches are intended to incorporate an ecological awareness that makes connections to current issues in students' lives. Geography teachers at this school certainly apply such an approach, and students enjoy learning the subjects as they share what is happening in their respective communities, which is quite different from simply learning theories in books. "Here we discuss issues on the changes of our forest and water issues that exist in the environment of our community," said one of the teachers. For this teacher, a learning environment involves more than just delivering information but also equipping students with the necessary skills to think critically and caringly on environmental issues. Students learn that teachers care, and teachers are eager to explore and deal with students' experiences in facing environmental challenges in their daily lives. A teacher-centred approach that is also student-centred is meaningful here. The approaches and methods of teaching and learning environmental content in this school provide great practice for teachers' efforts in implementing a learning environment. In this school, discussion between teacher and student takes precedence over conventional teaching approaches where teachers deliver lectures to passive students. Such a collaborative approach fosters greater student engagement and interaction in the learning process as students see the relevance of what is being taught. Ultimately, teachers' methods in incorporating ecological awareness in their lessons provide students with deeper and broader knowledge of the environment and its challenges as well as the crucial role that students can play in caring for our environment.

Our school teaches us about environmentalism in class, and we do lots of activities and clean-ups around the school and community to promote caring for the planet. We had a clean-up and tree planting day recently. We cleaned up around school and then went out to a vacant lot and planted 20 trees. One student wrote, "Today we cleaned up around school and also went to an empty lot and planted 20 trees." The teacher wrote, "This is part of our environmental units. We are learning about ecology and how important it is to protect our planet." Our school activities about environmentalism include more than just learning about it in class. We get to participate in activities that show us the importance of taking care of our planet!

Awareness of what it means to be a "national" should be spread to all levels of study. It is part of the process of education, which must be conveyed from an early age and pursued further. The educational process of communication skills is a way to build national awareness, as students, as future citizens, can develop the ability to think critically and wisely. This needs to be done, as national awareness is a responsibility of all citizens, not just those in authority. Schooling in an area strategic to the country calls for a sense of great responsibility in building national awareness by cultivating the ability to think critically and communicate effectively. This is because the region of Timor is significant from a geopolitical perspective, as well as from a cultural and social perspective, and students there must learn to accept, appreciate, and hold on to their Indonesian identity in the face of other pressures. Teachers of "Pancasila and Civic Education" at High School Negeri Tasifeto Timur 2 can speak from experience in saying that they teach national values and identity to reinforce students' awareness of their position as

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Indonesians and to foster unity. The area in which students live is important and must be understood, the teachers say, and this is why it is crucial for them to maintain national identity while respecting and respecting various cultures and ethnicities that co-exist. If national awareness is planted, then students will better understand the importance of respecting differences, and all will develop skills necessary to live amicably. In educating students to become good citizens and to hold on to what it means to be national in today's changing world, teachers are performing an important function. The key is in teaching both skills of communication and knowledge of national values, which, together, will enable future generations to appreciate both national identity and the differences that exist between them. By doing so, teachers will be contributing to fostering awareness of national identity.

The idea arose from a conversation with 18 students from 3 high schools. Some of their comments were selected to represent the broader ideas that emerged. While at school, students get theoretical knowledge on communication education from their teachers. To connect what they are learning with what goes on in their environment of the region of Timor where they live, students explore some real-life problems concerning their learning on communication education. Issues such as protection and conservation of forests and water – the basic things for human life – have been discussed. Students can understand the significance of the connection between the learning environment and the outside world where they live. By applying what they have learned, they will develop the responsibility to contribute to enhancing national resilience and ecological awareness. In general, communication education provided in schools is meaningful and has the function to make students aware of ecological issues that affect human life. Moreover, students equipped with knowledge and skills in communication education will be able to make contributions and take active actions in facing ecological issues in the region of Timor.

Table 1. Summarizing findings from interview analyses on communication education, ecological awareness, and national resilience

No	Interview Question	They Can Report	Student Answer Quotes	Meaning of the Findings
1	How do teachers approach other environmental-themed materials that need to be integrated into the school curriculum?	Student 1 (Surya Catholic High School Atambua)	"Some of the lessons included information about the local environment, the forests and the natural springs and how protecting the environment can affect people's lives."	Teachers successfully connect things in the academic theory with physical reality (forest/water) for Timor so that this material makes sense.
2	Does the school have eco-friendly activities?	Student 2 (SMK Negeri Belu 2 State Vocational High School)	"We usually conduct activities to clean school surroundings and plant trees in the surrounding area. This exercise is very important so that we learn to care for the space around us," the teacher explained. (Interview, May 16, 2025).	Consolidation of Values: Non-verbally done (such as tree planting) activities communicate action in a way that makes it easier to create ecological habits.
3	How do teachers describe the significance of safeguarding the environment for human survival?	Confirmed as Student 3 (SMA Katolik Surya Atambua)	"If the environment is not protected, all what we are going through like scarcity of water, infertile soil will happen," said the teacher. (Interview, May 15, 2025).	Risk Communication Teachers offer a rational explanation of the cause-and-effect link between local ecosystems destruction and community economic/social resilience

No	Interview Question	They Can Report	Student Answer Quotes	Meaning of the Findings
4	How can schools instill national values in students?	Student (Tasifeto Timur 2 State High School)	4 "Teachers often say that we are living in an area that is close to the borders of the country, which is why we must understand how important it is to maintain the whole unity and identity of Indonesia." (Interview, May 17, 2025).	The border location is then used as a communicating stimulant to strengthen the sense of nationalism and self-identity as citizens of the Republic of Indonesia.
5	How do teachers and students communicate in school learning?	Student (Belu SMKN)	5 2 "Teachers frequently reach out and invite us in to talk about environmental issues and the lives of the people around us." (Interview, May 15, 2025).	Dialmatic Communication Strategies: Discussion methods (two-way) are used, thus increasing students' active role in disaggregating social and environmental issues.

Dealing with the environment through school activities like cleaning up the school and planting trees can open students' eyes to the importance of environmental care. This is especially true in areas with mixed cultural heritage, such as in Indonesia, where students learn to take care of the environment and their national identity along the Indonesia-Timor-Leste border. Lessons are taught in the classroom, but outdoor activities and community service also demonstrate to students the enormous potential that they have to make a difference protecting the planet and preserving the values of their country. This study uncovers the positive impact that schools can have on students' attitudes and care for the environment and national identity.

Discussion

Teaching communication skills in the classroom can motivate students to appreciate environmental issues and nationalist discourse. A teacher is not only a person who delivers lessons to students in the classroom but also shares experience, interacts with students in various learning situations and engages in dialogue with them. Such dialogue motivates students to think together with their peers about what is happening in the world and how they can overcome those problems to improve the world. This study sought to investigate how teaching communication skills in the classroom fosters students' awareness of the environment and nationalist sentiments. It was necessary to observe how students think and grapple with problems in their community and environment in an interactive classroom setting. The findings of this study indicate that there is a positive correlation between awareness of the environment and nationalist sentiments and the practice of critical thinking in various learning situations in the classroom. The findings are in line with the views of various scholars who stress the importance of fostering critical thinking skills, as well as interactive learning experiences in the classroom (Al-Barakat et al., 2025; Felix et al., 2025; Kanoksilapatham & Takrudkaew, 2025; Lee & Al-Adeimi, 2025; Mani et al., 2026; Nugroho & Pena, 2025).

The implementation of a self-driving curriculum can assist teachers in making lessons more meaningful by relating them to students' everyday lives. The approach of the self-driving curriculum is designed to help students build connections between what they learn in school and the reality encountered in their daily life. Making lessons meaningful is a teaching approach that helps students to understand material in a more real way. For instance, when teachers make lesson materials relevant to the local environment, students can understand how what they learn can be applied in real life. This learning approach is called contextual learning. The teacher presents material in relation to the students' environment, thereby creating opportunities for students to understand the relevance of concepts learned in class to real-life

situations beyond memorization of information (Hardini et al., 2023; Selvianiresa & Prabawanto, 2017). Environmental education should be blended with local scenarios and combined with students' living conditions and experience if teachers are to be given sufficient degrees of freedom to select lessons that suit the learning objectives and situations of their students. By doing so, students can develop greater environmental awareness and gain a deeper understanding of the world around them. Giving teachers greater freedom to select lessons that incorporate local contexts will enable them to better support students' learning. SES creates the Self-Driving Curriculum, lessons, and educational materials that are designed to help students acquire the knowledge and skills they need to reach their full potential in life while fostering environmental awareness and sustainability. The effect on learning outcomes will be substantial, with students able to apply what they have learned in real-world scenarios. Learning will become more meaningful, prompting students to develop a love of learning that will last a lifetime. Such students will become more informed and active members of society, better equipped to handle the complex challenges of the 21st century (Gustomo et al., 2025; Reddy & Revathy, 2024).

Teachers use special approaches to incorporate environmental issues into their lessons. In addition to reading books and completing lessons from environmental texts, teachers provoke student discussion by talking about issues such as deforestation, water shortages, and pollution and their effects on living things and humans alike (Deda et al., 2025; Mfodwo et al., 2026). Environmental education can enable teachers to explore with their students how the environment is influenced by factors from within and from outside human society. By engaging in dialogue and discussion with each other on these themes, students can gain a deeper insight into environmental issues and develop their own suggestions for sustainable measures. Research suggests that such an approach can promote students' knowledge of the environment as well as their sense of affinity towards it. Schools, therefore, should make greater use of dialogue and discussion methods when it comes to environmental education—methods that can engage students actively and help them become environmentally conscious citizens for the future. (Maulida et al., 2022).

Caring for the earth is every individual's responsibility; hence, it is significant to practice environmental conservation from the early ages. Involving students in such practices can enable them to understand the values of environmental conservation and acquire knowledge and skills to apply such values in their real lives. Therefore, teachers can kick-start environment conservation practices at school by organizing a series of hands-on activities, including cleaning schoolyards and planting trees and taking care of them. Through such experiences students are not only going to know the reasons why we need to protect nature to survive but also practice caring for the earth. Involving students in many such activities would help them become better human beings by grooming them to care for keeping our earth clean and habitable for future generations. Literature such as Osborne, Schulz, and Setianingrum attests to the efficacy of incorporating such activities in classroom actions (S. Khan et al., 2025; Papavasileiou et al., 2025; Persano Adorno et al., 2025).

Understanding the country is an important matter for the students. That is why in schools near the Indonesia-Timor Leste border, discussing communication and culture becomes the main point to educate the children on how to be good citizens and love their country. It can be seen from several lessons taught by the teacher and students, such as subjects that review and hold precious the values of Pancasila and civic education, to maintain and preserve the national identity and cultural diversity that exist in the diverse country of Indonesia. Teaching and learning about citizenship and national awareness are vital for students, so they grow into responsible citizens who care about the country and its people. These lessons must be integrated with social and geographical aspects in the students' environment to make them more concerned with the problems that affect their surroundings and community. For that reason, lessons and activities about citizenship and nationalism are very important for

educating students in order to cultivate their love and pride of the country and to guide them in contributing positively to the growth and unity of the nation and global community. (Cardoso et al., 2026; Khan et al., 2022).

CONCLUSION

Education plays a huge role in helping students understand how to take care of the environment and be proud of their country. This is what happened at the senior high school located on the border of the two countries of Indonesia and Timor Leste. Teachers use special ways of teaching that involve talking and discussing things with students, which helps students see how what is learned in class relates to the world around them. The students learn about caring for nature and being good citizens, which makes them more aware of the importance of protecting the environment and proud of their country. Schools are doing this by using a new curriculum that allows students to learn by talking and discussing things. Teachers also carry out activities that help students learn about nature and become good citizens. This makes the students more concerned about the environment and feel more empowered to be part of their country. This shows that teaching communication skills can be a good way to help students learn about caring for the environment and being good citizens.

In the future, researchers should try to find better ways to teach communication skills that can help students in other fields learn about taking care of the environment and being proud of their country. This will help ensure that the next generation of young people care about the environment and are committed to their country. By doing this, it can help create a better future for everyone. The way students learn about protecting the environment and becoming better citizens. It's not just about learning facts but about understanding how to apply what students learn to real-life situations. This is what schools in the Region of Timor are trying to do, and it works. The students became more aware of the importance of protecting the environment and were proud of their country. Overall, teaching communication skills is an important part of helping students learn about caring for the environment and being good citizens. By using specific teaching methods that involve talking and discussing things, schools can help students understand the importance of protecting the environment and being proud of their country. This will help create a better future for everyone, and it is something we should all strive for.

One of the limitations of this study is that the research is only conducted in one school context in border areas so that the results of the research cannot be generalized to all schools in border areas and other non-border areas. In addition, this study focuses more on communication practices in classroom learning activities and has not thoroughly examined external factors such as family background, social environment, and government education policies that can also affect students' environmental awareness and nationalism. Another limitation is that the number of participants involved in interviews and observations is still limited so that it can affect the diversity of perspectives obtained in this study.

The implications of this study suggest that communication-based learning practices can be an effective educational strategy to strengthen students' environmental awareness and nationalism, particularly in border areas. This research also provides practical implications for teachers and schools in developing participatory, dialogical, and local context-based learning models that link environmental education with civic and national values. In addition, the findings of this study can be a reference for policymakers in designing educational programs that integrate ecological awareness, communication practices, and character education to strengthen the national resilience of the younger generation.

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