Teaching Environmental Literacy in a Language Bridging Setup

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Authors' contributions

This work was carried out in collaboration among all authors. Author RJCQ managed the analysis of the study and literature searches. Authors CEB, KAFH and RMGV designed the study, performed the statistical analysis, wrote the protocol, and first draft of the manuscript. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

In the context of educational settings characterized by linguistic diversity, the challenges inherent in teaching within a language-bridging framework underscore the necessity of overcoming language barriers to instill environmental literacy among elementary students. This study delves into the practices and experiences of educators in imparting environmental knowledge amidst linguistic challenges, employing a qualitative research design to explore the multifaceted dimensions of teaching environmental literacy in such contexts. Through purposive sampling and in-depth interviews with six elementary school teachers, the research elucidated the utilization of a holistic instructional approach, while also highlighting the impediment posed by teachers' lack of dialect proficiency, leading to language obstacles in the classroom. However, the study unveiled the adaptive strategies employed by teachers, such as two-way learning, to facilitate effective language transition during instruction. The findings not only shed light on the current pedagogical landscape

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but also point towards future directions, emphasizing the significance of continual professional development, collaborative teaching practices, cultural awareness training, and community engagement as pivotal avenues to surmount language barriers and cultivate environmentally literate students.

Keywords: Holistic approach; language transition; two-way learning.

1. INTRODUCTION

Elementary school teachers hold a pivotal position in shaping the intellectual and moral development of young learners, serving as the foundational pillars of the educational edifice, as underscored by Bond [1] in likening the educational system to a ladder, with these educators crucial in laying the groundwork for scholastic advancement and societal impact. This assertion gains further credence through insights from the PISA 2022 data [2], which underscores the pressing need for enhanced scientific acumen, particularly in the realm of environmental literacy, among students, especially in nations with lower proficiency in scientific disciplines. Drawing from the OECD's recommendations [3], schools emerge as key catalysts in nurturing an environmentally conscious ethos among students, fostering a sense of purpose that propels them towards active engagement in environmental stewardship initiatives. Aligned with the Sustainable Development Goals (SDGs) [4], the promotion of environmental education within educational institutions stands as a strategic imperative towards realizing the overarching goal of environmental sustainability by 2030.

Environmental literacy must be developed as young children have good memories and eventually form a good habit [5]. Therefore, it was an excellent opportunity for elementary school teachers to increase students' literacy in environmental education from an early age; thus, it was a good practice that turned into a habitual behavior. Clayton et al. [6] also supports this, where the teacher's role as a catalyst for change is to help students develop environmental literacy.

Environmental literacy must be taught to the students, but some problems occur in the class, such as language barriers, which may be an extremely problematic issue in teaching [7]. Overcoming language barriers is crucial to building relationships [8]. However, environmental literacy has long been recognized as a primary goal of environmental education. Veisi et al. [9] contend that more attention needs to be paid to research examining how best to teach environmental literacy to develop literate students.

Students frequently find it challenging to communicate in academic contexts because of language barriers, fear, or humiliation, and many second language learners typically become quiet. This is supported by Tridinanti [10], that the fear of their surroundings and their inability to communicate and express themselves is made worse by their limited language skills, and this anxiety may hinder their learning and result in substantial emotional stress, low self-confidence, and difficulties in speaking ability. Classroom language obstacles are commonplace in Kenya, a nation with two official languages and 66 regional tongues [11]. Furthermore, the implementation of translanguaging strategies facilitates students in the cognitive endeavor of concurrent multilingual thought processes, leveraging their mother tongue as a conduit for academic knowledge acquisition [12]. This pedagogical approach not only influences students' grasp of instructional directives and subject material but also correlates with heightened student engagement and academic achievement, as evidenced by Dougherty's [13] research findings.

There are several different teaching strategies that not only adapt to the interaction of different cultures and languages but also appreciate their value for the effects of elementary teachers in teaching environmental literacy in a language-bridging setup. Díaz et al, [14] affirmed that teaching techniques should be supported by materials, institutional assistance, and didactic resources to foster kids' environmental attitudes, abilities, and values. In the Philippines, the Department of Education urges all public and private schools to lead environmental awareness by improving environmental education and pursuing successful school-based activities focused on preserving and protecting the environment by the Republic Act (R.A.) No. 9512, "An Act to Promote Environmental Education and for Other Purposes." Moreover, the Department of Environmental and Natural Resources [15] stated that the teaching method

should include both theoretical and practicum modules consisting of activities, projects, and programs such as tree planting, waste minimization and management, segregation, recycling, and composting, freshwater and marine conservation, forest management and conservation, relevant livelihood opportunities, and economic benefits.

Teachers assist their multilingual students in transitioning from using various translanguaging techniques, including code-switching which refers to the practice of transitioning between different languages or dialects, based on the social environment or conversational context [16]. For more effective teaching and learning and greater student engagement in language learning activities, these strategies used the various linguistic and semiotic resources that students and teachers both possessed [17]. Zeaiter [18] stated that by applying multilingual strategies to bridge the gap and optimize language learning for students. Effective and confident communication was attained by those students who, in particular, attach great importance to connecting their linguistic knowledge with societal and cultural situations [19]. It examines ties between students' language skills evaluation, program performance, and subsequent degree program results [20].

In certain regions of the Philippines, elementary school teachers grapple with the challenge of language barriers while instructing environmental literacy to students from varied language backgrounds, emphasizing the pressing need for effective language acquisition support. Jerome Bruner's interactionist theory underscores the pivotal role of parental or teacher guidance in facilitating children's language learning, shedding light on the essential support required to address linguistic diversity in educational settings. The challenge for Filipino teachers in teaching environmental literacy urges the researchers to conduct this study, knowing that the number of dialects in the Philippines is estimated to be over 170 spoken languages [21].

1.1 Research Objectives

In the realm of elementary education, educators are confronted with language barriers hindering the effective teaching of environmental literacy. Despite these challenges, the implementation of diverse strategies can enhance the learning experience for students with varied language backgrounds. This qualitative study, utilizing a descriptive phenomenological research design,

seeks to elucidate the experiences of elementary teachers and advanced educators in facilitating environmental literacy within a language-bridging framework. This study is expected:

1. To determine teachers' experience in teaching environmental literacy.
2. To determine language barriers in teaching environmental literacy in a language-bridging setup.
3. To determine the effectiveness of language transitions in teaching environmental literacy in a language-bridging setup.

2. METHODS

2.1 Participants

In this study, elementary teachers were selected as informants from a specific school in Region XI. Utilizing purposive sampling, the researchers intentionally targeted individuals with extensive expertise and direct involvement in addressing language barriers during the instruction of environmental literacy. The decision to select interviewees based on specific characteristics, as advocated by Nikolopoulou [22], aimed to capture nuanced insights essential for achieving the study's objectives effectively. A flexible method of gathering qualitative data through in-depth interviews enables people to explain in their own words how they perceive and understand their lived encounters underlying a given topic or issue [23]. Numerous articles, book chapters, and books recommend guidance and estimate that 5 to 50 participants are sufficient in sample sizes in qualitative research [24]. Researchers invited six teachers for qualitative analysis in this study, the school constituting the population of interest for the research. Interviewees must be (1) an elementary teacher of any age, gender (2) from Kindergarten to primary grade, (3) with one year and above of experience, (4) encountered students with different dialects, (5) do not speak the same dialect as their students. The one-on-one interviews must center on the teachers' experiences in educating the students about environmental literacy in language bridging setup by asking.

2.2 Instruments

This qualitative research utilized an interview guide consisting of validated questions. In-depth interviews were conducted with selected teachers, and these were audio-recorded. The

interview questions were designed to address the research objectives, and the researchers took notes using paper and pencil. The questions were open-ended, and a conversational format was used during the interviews [25]. The interviewees were informed that the interviews would be audio recorded. The recordings, along with the researchers' notes, were securely stored and used for transcription purposes.

2.3 Design and Procedure

This study used qualitative research to determine the language barriers and effectiveness of language transition in teaching environmental literacy in a language-bridging setup. The usage of qualitative research enables interviewees (research participants) to express themselves and their "lived experience" stories in the manner they choose [26]. A descriptive phenomenological research design was utilized to explore the essence of human experiences and the meaning people attribute to them [27]. The study effectively gathered essential information about the experiences of teachers who taught environmental literacy in a language bridging setup through a descriptive research design. Considering the use of a descriptive research design, it is simple to comprehend the situation [28]; these teachers managed the difficulties they faced and the techniques they employed to overcome them. The study's findings could benefit other educators who may have encountered similar difficulties in teaching environmental literacy in a language-bridging setup. Before gathering the data, the researchers ensured that the comprehensive interview protocol, structured to align with the research objectives, encompasses sections covering background information and experiences of the teachers, strategies and support in teaching, impact and future directions of the study, while expert feedback from research coordinators and adviser ensures the questions' relevance and clarity. Interview guided questions were relevant to our study. Hence, the researchers constructed and used pertinent questions in this qualitative research that were checked and approved by the Research Publication Center of UM Digos. When the researchers receive the approved interview-guided questions, all necessary documents are processed for the outbound campus interview. It includes the approved and signed letter by the program head, research adviser, Research Publication Center of UM Digos, and the Dean of College. The researchers went to the school of the research participants and formally asked permission from the school principal to interview

the selected teachers. School stakeholders set a schedule for the one-on-one in-depth interview with elementary teachers to collect research data about teaching environmental literacy in a language-bridging setup. During the one-on-one in-depth interviews inside the classroom, the researchers recorded the conducted interviews using audio devices. Each research interviewee received a token from the researchers to show gratitude that they agreed to the interview. The researchers listened and took time to transcribe the interviews of the participants, which were sent to the data analyst. The data were given to the researchers by the data analyst after two weeks. Colaizzi's data analysis was used to make meaningful inferences from this qualitative research. Colaizzi's strategy effectively identified significant statements from the transcribed verbatim and formulated meanings [29]. The data gathered from 6 interviewed elementary teachers were tabulated, analyzed, and interpreted the information that had gathered. Colaizzi's descriptive phenomenology statistics allowed researchers to understand how all participants discussed the same experience from different perspectives of teachers teaching environmental literacy in a language-bridging setting. The researchers studied and acknowledged the findings of the data analyst. Moreover, the data is presented in the results section of this paper.

2.4 Ethical Considerations

Collecting data from real-life phenomena, studying effective treatments, investigating behaviors, and improving people's lives, researchers must always follow a strict code of conduct [30]. Researchers of this study ensure that participants are informed about the nature and purpose of the study, and researchers give informed consent before participating—consent forms are an agreement of trust between the researcher and the participants. Identities have remained private. Everyone who participates in the study is made aware of their rights and allowed to opt out without incurring any obligations. According to the Data Privacy Act, this research does not include the personal data of the research participants.

3. RESULTS AND DISCUSSION

3.1 Teachers' Experience in Teaching Environmental Literacy

Fig. 1 presents the qualitative findings of teaching environmental education in a language-

bridging setup. The results were derived from the interviews of elementary school teachers about their experience of teaching environmental education in a language-bridging setup. It came up with one theme, the Holistic Approach to Learning, and its sub-themes are Instruction in Teaching Environmental Literacy, Action in Teaching Environmental Literacy, and Background of the Students in Learning.

A holistic approach to learning: The development of environmentally literate students is significantly aided by teachers [31] who provide opportunities for environmental learning and care behaviors to emerge during the school days, whereas schools must adopt a holistic approach [32] because it places a strong emphasis on the intellectual, emotional, physical, and spiritual growth of the individual [33]. The theme of the Holistic Approach to Learning, along with its sub-themes of Instruction in Teaching Environmental Literacy, Action in Teaching Environmental Literacy, and Background of the Students in Learning, underscores the interconnected nature of environmental education, emphasizing the importance of comprehensive instructional strategies, active engagement in environmental issues, and consideration of students' diverse backgrounds as illustrated in the following Fig. 1.

A holistic approach incorporating both techniques and simulation to increase engagement may and should be a more memorable experience for the students [34]. The teacher has a wide range of influence over his pupils in an overall approach

to education and determines the roots of all factors that contribute to the development of the individuality of the students [35]. A holistic approach in which a teacher promotes children's healthy growth and creativity and views them as decision-makers in their surroundings [36]. Teachers can incorporate environmental issues by using teaching practices that increase the value of students' love for the environment and attitudes toward its preservation [37]. According to Guilarte et al. [38], the connection between critical competencies and 21st-century challenges gives value to learning, and primary teachers must bring the school closer to real situations, issues, and problems of everyday life in teaching. With the help of flexible teaching and learning methods, two-way learning in the Philippines is becoming more and more adaptive and effective, and it is becoming the most reliable method of continuing education [39].

Instruction in teaching environmental literacy: Instruction is a method of organizing and delivering learning experiences following the personal differences of the learners [40]. A study affirmed that to improve students' understanding of global warming concepts, strategic intervention material-based instruction in teaching is one of the effective scaffolds [41]. Only knowledge would allow people to make wise decisions; teachers encourage actions that protect the environment and bring about change that outweighs this reality in both its social and natural facets [42]. Elementary teachers share the same experience in teaching environmental literacy in this context.
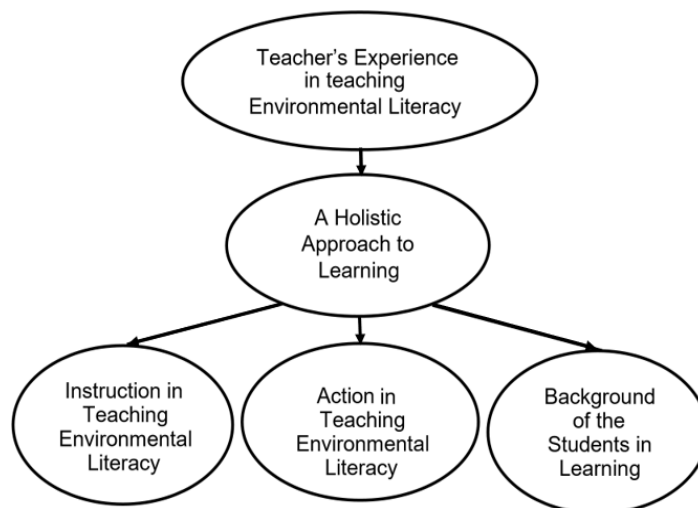

Fig. 1. Teachers' experience in teaching environmental literacy

I will integrate it by having a question and answer on how to segregate garbage. So it is not only in the lesson but also in Holistic, promoting environmental education is implemented daily. For example, during recess, I will teach them how to segregate their own trash, whether it is biodegradable or nonbiodegradable. *(So mogawas na siya sa question and answer sa studyante kung unsaon pag segregate sa basura. Dili lang sa lesson kundi mogawas na siya everyday, kuan siya holistically. Specially pag mag recess, so tudloan nimo sila asa maglabay og basura. segragate ang malata og dili malata).* [Line 2, Participant 1]

We teach students during the lesson how to protect and save the environment due to the ubiquitous issues about the environment like climate change. So that the next generation will benefit Mother Earth. *(Gina promote namo siya sa pag tudlo sa mga bata og kanang about sa nature, how to protect and save the environment tungod sa mga nahitabo sa environment like climate change. inig manglimpyo mi ginaingnan nako sa ilaha tabangan natog save ang mother earth aron mapuslan pa sa sunod nag generation).* [Line 2, Participant 2]

We promote it. In protecting and conserving the environment, my example is to not waste papers. They asked me where the paper came from. So, if ever they put the paper into waste, they will also harm the nature where it came from. One of our solutions to promote is to know how to plant. Even though the area is not that big, we teach them how to plant in their surroundings. One thing to take good care of the environment is to not burn plastics to prevent it from harm. The rest is to know what proper segregation is. *(Gi promote namo, ang gina example nako sa protect and conserve the environment is dili sila mag usik-usik ug papel. Kay nangutana sila kung asa gikan, unsay connection sa papel. So the explanation is, ang papel gikan sa kahoy, so if ever ilang ipang usik-usikan, at the same time nga ilang gibuhat, murag ila napung gikuanan ang kinaiyahan. So isa pud sa amoang solution ana ang kasagaran sa amoang pag promote sa environment on how to plant. Gi unsa ug pagtanom sa ilahang mga palibot, bisan pag gamay ilahang luna, tudloan sila unsaon pagpananom. Ug isa pa, ang pag take care sa environment nga dili sila mag sunog² ug mga plastic kay makadaot sa environment. The rest kay pag segregate sa mga basura.)* [Line 2, Participant 6]

These findings uphold Barile's [43] claims that instructions are used extensively and directly impact students' learning efficiency. Hence, a wide range of variables, such as a person's working memory capacity, societal rules, history effects, self-regulatory behavior, and instruction format, have been studied as influences on following instructions [44].

Action in teaching and learning environmental literacy: The action is often referred to as teaching, a system of actions intended to induce learning," imparting may refer to instruction [45]. The willingness to take environmental action results from a complex network of cognitive processes that starts with values, which lead to attitudes and then to one's beliefs [46]. Developing environmental care actions from a young age through the school culture is possible. It is supported by the study of Harsari et al. [47] that the implementation of school culture to foster an attitude of environmental stewardship is accomplished through habituation, such as routine tasks completed consistently by students, excellent school leaders, educators in providing examples of environmental stewardship, spontaneous tasks completed at the time and establishing conditions that foster environmental stewardship. In line with this, elementary teachers share the same experience teaching environmental literacy.

I observe and assess students several times I instruct my students. I always remind them to be clean in the surroundings and the parents are also involved here. *(Ma assess ra nimo once ika pila ka times na nimo ibalik. Kay naa man guy mga bata kabalo na asa molabay, human og klase manilhig. So kato sila nakabalo na unsa ka importanti ang manlimpyo. Naa pud ubang students nga liwat liwat sa parents).* [Line 6, Participant 1]

I am observing them if they know what we taught them, for example if they throw their garbage properly. *(Naga bantay ko ug nagkabalo ba sila sa akong gipang tudlo sa ilaha ug pareha anang sa basura ug kabalo naba sila ug asa ilabay dapat mga ing-ana bitaw).* [Line 6, Participant 3]

For me since I am now a teacher, first, I have to do it by myself. I have to be a model of how to take good care of the environment. So, the students would also know the importance of how to take good care of the environment. *(For me, since I am now a teacher, first I have to do it by*

myself po. I have to model, unsaon nako ang pag take good care sa environment. So that they would also know nga importante pud diay kaayo nga the way they take good care sa ilahang environment. So mag model jud ka sa imuhang self). [Line 2, Participant 5]

This is also affirmed by Sass et al., [48] that schools should continue to offer informational programs about environmental concepts, the state of the environment, ecological issues, and problems. Likewise, environmental advocacy and eco-movement may also be institutionalized in the school through student organizations such as YES-O and Science clubs [49]. Since action is the ultimate goal of education, educators should strive to provide information on the layout and specifics of developing a curriculum on action competence in a learning environment that helps students and citizens of the world with the action competence necessary to envision a sustainable future for our planet.

Background of the students: Students' performance has varied regarding factors relating to their performances and related student characteristics such as gender and immigration background [50]. In carrying out learning activities for its students, the contribution approach, social action approach, and habituation shortening to form the character of social care, environmental care, cooperation, and tolerance for children are taught in school [51]. Moreover, the character qualities were highly valued, and the character strengths approach helps students cross the gap between emotional engagement and active environmental concern [52]. In line with this, elementary teachers share the same experience teaching environmental literacy.

They are not the same. Some know how to keep their trash, and how to keep their area clean and some don't. *(Dili sila pareha pareha, naay damakon naay limpyada naa puy magpatakag labay sa basura.)* [Line 4, Participant 1]

At home, they practice throwing garbage in the ocean, they do not practice proper waste management, and do not have proper cr. *(Kay sa ilahang balay Ilahang mga basura gina labay sa dagat. Walay cr, ang mga bata ddto ra malibang.)* [Line 4, Participant 2]

It depends on their culture, depends on what they are used to. Especially in this place where mostly Muslims, the proper segregation is not implemented even from their parents or at their homes. *(Depende sa ilahang culture, depende sa ilahang na andan. Na andan gyud na nila diri especially sa amoang lugar nga Muslim area, naa pud diri sa suok nga lugar nga gikan pa sa ilahang parent ang pag segregate sa mga basura, wala najud na naimplement sa ilang balay palang daan.)* [Line 4, Participant 6]

Students' diverse cultures broadly refer to any beliefs, norms, and practices that are distinctive to a given society, group, or location and significantly impact behavior [53]. Different human cultures have resulted in various consequences on their environments. Cultural values can affect the link between environmental awareness and pro-environmental behavior, bridging between intentions and actions. Our conceptualization is the first step in identifying and leveraging cross-cultural differences to encourage global pro-environmental behaviors [54].

Language barriers in teaching environmental literacy: Fig. 2 shows qualitative findings on language barriers in teaching environmental literacy. The results were all derived from the interviews of elementary school teachers about their experience of teaching environmental education in a language-bridging setup. It came up with one theme: Lack of Dialect Proficiency and its sub-themes: Lack of Proficiency in Communicating and Understanding; External Sources used in the learning process.

Lack of Dialect Proficiency. Dialect language proficiency involves mastery of oral, written, and visual communication in both academic and nonacademic language. [55]. Language teaching scholars agree that initial literacy development is best achieved when taught using the mother tongue as the mode of instruction [56]. In line with teaching environmental literacy, High awareness of cleanliness is taught at an early age through a formal or informal educational institution. It works with teaching staff, which also impacts the surrounding environment in the future [57]. However, teachers find it difficult to teach using the spoken dialect by students due to the teachers' lack of proficiency in L1 [58]. The early cultivation of cleanliness awareness in educational settings plays a crucial role in shaping environmental consciousness among students, ultimately influencing future environmental practices. However, the difficulty that teachers face in teaching using the spoken dialect due to their own lack of proficiency in the
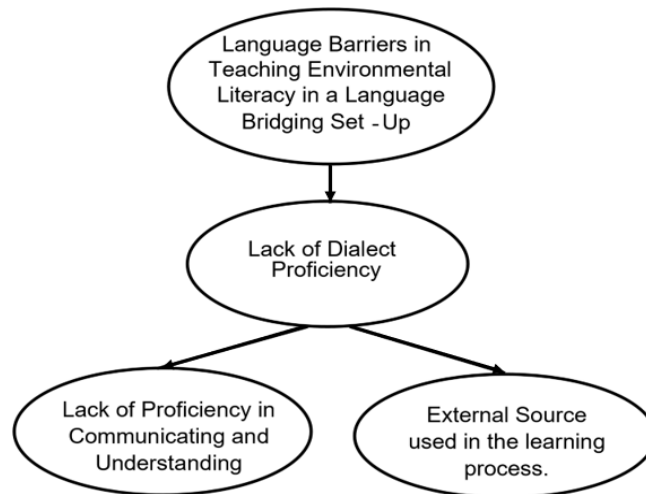
Fig. 2. Language barriers in teaching environmental literacy in a language-bridging setup

students' native language poses a significant hurdle in environmental education delivery, as well as the reliance on external sources in the learning process as illustrated in the following Fig. 2.

The teacher states that the MTB-MLE training they receive does not apply to their day-to-day instruction because of the diverse linguistic backgrounds of the learners [59] Findings showed that teachers who are nonnative speakers of the first language or mother tongue of the learners generally have trouble using the dialect or language as a teaching tool; there are terms used in educational materials that are uncommon, and teachers usually do the translation method or code-switching as a solution to the problem in their classroom [60].

Lack of Proficiency in Communicating and Understanding. MTB-MLE implementation in the Philippines faces issues such as mismatched dialects between teachers and learners, lack of materials, and multilingual classroom complexities, leading to poor instruction delivery, low student performance, and confusion [61]. Several studies have highlighted difficulties in implementing MTB-MLE, which, despite its potential to promote language development, requires an improved curriculum, including a strengthened organizational structure and enhanced MTB-MLE teaching cohesion [62]. Problems with using Mother Tongue include difficulty in translation, low proficiency for teachers and pupils, degradation of English proficiency, and lack of teacher training [63]. Despite the mandatory implementation of the

MTB-MLE program in the Philippines, teachers still faced challenges in teaching and received negative feedback on the program's performance [64]. It is critical to study the challenges educators face as a bridge to successfully implementing the MTBMLE program to respond to students' need to learn by using the materials as a springboard for learning a familiar language [65]. This study identified language barriers within the research site, where students predominantly communicate in the Muslim dialect known as Sinama, while the teachers primarily speak Bisaya and minority of the students as well. This linguistic disparity underscores the contextual challenge posed by the divergence in dialects between educators and students within the educational setting.

Here in our school, you will have a hard time. No matter how the child is taught, it will be difficult because the parents are lacking. Because the first education should be at home, not school, we will have a hard time. As parents, we should have that responsibility to take good care of our children *(Lahi jud dire sa lugar namo maglisod jud ka. Bisan unsaon ug tudlo ang bata maglisod jud kay kulang ug atiman sa ginikanan. As a parent we should have that responsibility to take good care of our children despite that hectic schedule we have kay responsibility man jud nato na sila kay anak man nato).* [Line 2, Participants 3]

There are some children who find it difficult to understand the lesson so my strategy is to teach them until they understand because when the time comes they will say thank you ma'am for the

knowledge that you have shared with me, you will not be forgotten. because you told them to be good. Being a good person doesn't cost anything. *(Naay uban bata mag lisod ug sabot sa lesson so ang strategy nako kay tudloan jud sila hangtod sa makabalo sila kay para inig abot sa panahon maka ingon jud sila nga salamat maam ha sa imong mga knowledge nga na share nimo sa akoa dili ka makalimtan kay gitarong man nimo sila so be good to your students wala may bayad ang pagiging maayo na tao).* [Line 4, Participant 3]

Yes there are language barriers because most of my students are Muslims, it will be difficult for me to explain to them, for example, when I give instructions, I have to ask the parents what the Muslim word(Sinama) is so that I can teach it to my students. *(The language barriers kay tungod naay Muslim sa akong students maglisod ko o ug pasabot sa ilaha example anang maghatag ko ug instructions kailangan pa nako mangutana sa parents ug unsay muslim word(Sinama) ani para matudlo nako sa aking students).* [Line 8, Participant 3]

External source used in the learning process: Visual aids, such as pictures and texts, are crucial in education. They motivate students, facilitate comprehension, spark interest, aid in retention, broaden vocabulary, and offer practical experiences. [66] that makes an excellent contribution for the direct awareness of the environment formation done by teachers [67]. According to Patesan et al. [68], the use of visual aids helped students build vocabulary; students were able to speak, listen, and improve their writing skills, as well as to be creative in thinking. Another support or external source of teachers in bridging the gap is the parents involved in their children's learning in various ways, such as explaining, completing, and checking their child's worksheets or assignments [69]. Good communication between schools and parents is essential for promoting academic success, positive behavior, parental involvement, positive relationships, early intervention, and enhanced understanding of school policies and procedures [70].

There are some children who find it difficult to understand the lesson, so my strategy is to teach them until they understand because when the time comes they will say thank you ma'am for the knowledge that you have shared with me, you will not be forgotten. Because you told them to be good. Being a good person doesn't cost

anything. *(Naay uban bata mag lisod ug sabot sa lesson so ang strategy nako kay tudloan jud sila hangtod sa makabalo sila kay para inig abot sa panahon maka ingon jud sila nga salamat maam ha sa imong mga knowledge nga na share nimo sa akoa dili ka makalimtan kay gitarong man nimo sila so be good to your students wala may bayad ang pagiging maayo na tao).* [Line 4, Participant 3]

As a kindergarten teacher, you should really have pictures just like in ESL, you show the picture and translate it into their dialect. Not just one time but several times. For example, in alphabet examples. The letter alphabet sample should be in the mother tongue in K-1 and also in their dialect. My example of the letter "i" in my mother tongue is "ilaga," and the students did not agree because, for them, the rat (ilaga in bisaya) is called "ambaw" based on their dialect, and it is an example of the alphabet "A". It is important that your pictures are contextualized. They learn fast if they see, feel, or experience it in their daily lives. *(as a kindergarten teacher, dapat jud naa kay pictures.Mura rakag nag esl You show the picture, you tell the picture unya istorya sa ilahang dialect. Pero dili lang ika isa dapat kadaghan. For example, in alphabets ang k-1, mothertounge ang example. Ang akoang example sa "I" is Ilaga tapos ana akoang mga studyante dili daw na I ang ilaga kay sa ilaha "Ambaw" daw na sa ilaha. Pinaka importanti nga ang pictures kay contextualized para makasabot ang mga bata kung mas nakita niya ang picture or nasinati niya everyday).* [Line 12, Participant 1]

The impact of language bridging in teaching Environmental education is beneficial in teaching and learning for students. Like me, if the teacher does not know their dialect, there will be a language barrier because students will nod even if they do not understand or bother to ask. Sometimes, students are not taught by their parents, so Language bridging is needed. It has a big impact. It is effective because it allows students to understand my instructions. *(Makatabang gyud siya sa pag teach og environmental education, mao na iyahang impact sa amoa og sa mga students. Parehas sa akoa nga dili kabalo sa ilahang stinoryahan so naa juy language barrier tapos mag tando tando ra ang mga studyante maski wala kasabot sa akoang giingon nya di mangutana. Need jud ang language bridging kay ang mga bata man gud ushay dili gina tudluan sa mama. So dako jud siyag impact og effective siya para makasabot*
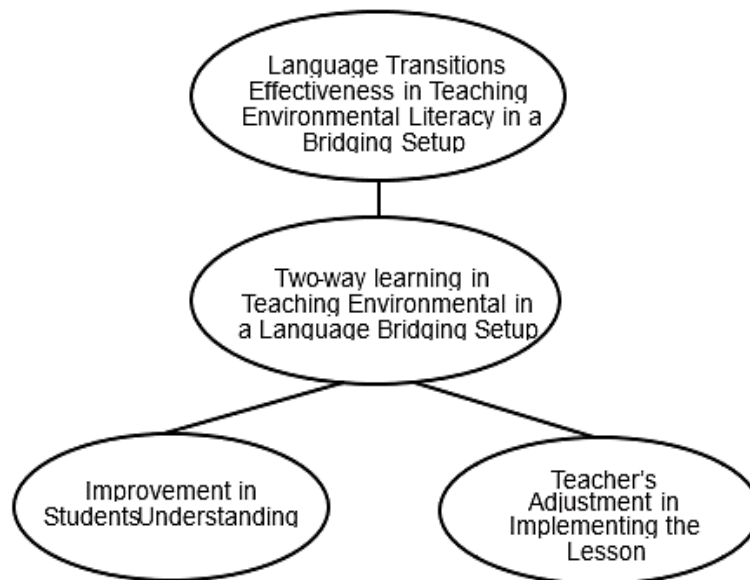
Fig. 3. Language transitions effectiveness in teaching environmental literacy in a language bridging setup

ang mga students in teaching environmental education). [Line 14, Participant 1]

Language transitions effectiveness in teaching environmental literacy in a language bridging setup: Fig. 3 presents the qualitative findings of the effectiveness of language transition in teaching environmental literacy in a language-bridging setup. The results were derived from in-depth interviews with the elementary teachers regarding the effectiveness of language transitions based on their experience. It came up with a significant theme: Two-way learning in Teaching Environmental Literacy in a language-bridging setup, composed of two (2) subthemes: Improvement in Students' Understanding and Teacher's Adjustment in Implementing the Lesson.

Two-way learning in teaching environmental literacy in a language bridging setup: Teachers use two-way learning practices to support learning through collaborative and effective teaching techniques and get direct and anonymous feedback from students who use these methods [71]. Two-way learning can help students improve their understanding, considering that environmental education plays a vital role in real-world problems [72]. Two-way learning allows teachers to succeed in helping students get the knowledge they need with immediate responses to questions. It positively influences their educational experiences, demonstrates empathy, cooperation, and mutual respect, and models behavior in different ways that encourage student resilience [73]. Through two-way learning principles, this theme encompasses subthemes focusing on enhancing students' understanding and teachers' adaptability in lesson implementation. By engaging in two-way learning practices, teachers facilitate collaborative teaching techniques and receive valuable feedback from students, fostering a dynamic educational environment as illustrated in the following Fig. 3, this partnership involved mutual aid, knowledge exchange, and a more open attitude to each other's worldviews to bring about significant and long-lasting change in all facets of education.

We act as each other's mentors at various points, serve as interpreters, have each other's backs, and regard each other as equals with unique perspectives to share [74]. Two-way learning shows that teachers' and students' feedback on each other in a twoway manner, which could lead to improvements in student comprehension, provides fresh and valuable insights despite its experimental nature [75]. Using the two-way learning technique with elementary- aged kids is quite successful because if this method is used, Jong [76] states that two-waylearning in environmental education aims to promote elementary pupils' learning motivation, the children actively participate in the learning process, and the students are happy when using it in class. Therefore, the teacher must be skilled in distinguishing and selecting a

suitable approach for education and training activities [77]. 'Two-way' is a general phrase for various pedagogical strategies: indigenous viewpoints, indigenous' both ways' education, team teaching, multilingual education, learning styles, and domain separation [78]. Two-way learning between teachers and students not only can potentially provide the information sought by students but can also educate teachers on the lived experiences, thereby improving the quality of the learning process and the applicability of learning outcomes [79].

Improvement in Students Understanding. Implementing student understanding and learning with a local wisdom approach influenced and enhanced the students' environmental literacy [80]. The study of Isnaniah and Imamuddin [81] suggests that using manipulative media may improve students' understanding. Based on Muhdhar's [82] study, the implementation of the surrounding nature exploration approach and integrated group investigation can improve collaboration skills and environmental literacy for a better understanding of the students. Teaching remotely via a social distance is being used, and there is significant demand for tutor services because they help students learn; whether or not students wish to develop and reinforce learning to increase their knowledge and understanding is still being determined [83]. Over a while, research and scholarship in language teaching have examined how well training activities work and their effect on pupils' behavior and outcomes [84]. The study by Spork [85] showed that commendation can play an essential role in environmental education because of its ability to help students deal with emotionally complex subjects and promote critical thinking and creativity by providing a deeper understanding of each learning process for the students.

For me, there's no negative impact because it is very effective and there will be no teaching and learning that will happen if the teacher and students don't understand and communicate well. Especially in Teaching Environmental education because this is a sensitive topic because sometimes it depends on their upbringing. Along the way, the students and teachers adjust to its dialect. *(For me, wala siyay negative impact kay effective jud siya sa pagtudlo. Walay mahitabong teaching and learning if di magkasinabot ang maistra og studyante. Pero kadugayan gyud, along the way makabalo na sila mag bisaya and ang maistra*

kay kabalo napud mag storya sa ilahang stinoryahan). [Line 16, Participant 1]

My strategy is to teach them until they understand because when the time comes, they will say thank you ma'am for the knowledge that you have shared with me, you will not be forgotten. because you told them to be good. *(Ang strategy nako kay tudloan jud sila hangtod sa makabalo sila kay para inig abot sa panahon maka ingon jud sila nga salamat maam ha sa imong mga knowledge nga na share nimo sa akoa dili ka makalimtan kay gitarong man nimo sila so be good to your students).* [Line 4, Participant 3]

I compliment them everyday, I don't scold them, that's the challenge on how to motivate the students so that they can enjoy school and not keep being absent. *(E complement sila adlaw2 dili sila kasab-an mao na ang mga challenges on how to hagwa2 the students para maganahan sila mo skwela dili mag sige ug absent)* [Line 9, Participant 4]

On the authority of Fuente [86], effective teaching practices, methods, and approaches to delivering quality and meaningful learning and understanding for students with a variety of backgrounds in the regular classroom environment are important factors behind a student's success. Also, as Asrizal [87], mentioned, to build and enhance students' understanding of environmental literacy, the learning process with a CTL strategy delivers learning material relevant to the environment around them.

Teacher's Adjustment to students' language. To clarify the explanatory role of teachers' need-based experience to understand better their perceived social pressures, i.e., pressure from leaders, fellow educators, and students, as well as personal adjustment and motivational teaching style, which indicates that need-based experience has a unifying role concerning different kinds of pressures and instructors' adjustment, as well as their teaching style [88]. Three possible ways of helping teachers cope with virtual teaching obstacles were proposed by this study on the importance of student access to eLearning, educational resources, and tools for supporting pedagogical activities [89]. Research shows that teachers with a higher level of self-efficacy are more apt to adopt new teaching techniques, set more complex objectives for themselves, plan and organization

improvements, concentrate their efforts on solutions, request assistance, or modify learning plans in the face of difficulties [90].

I talk to parents and ask for their help to make a chart which translates in their dialect. I start with words and then phrases. (So *akoang gibuhat kay nakig storya ko sa mga parents, nagpatabang ko nila nga maghimo kog chart nga naay translation sa bisaya og sa ilahang dialect. Naa sa chart kay words and phrases lang).* [Line 10, Participant 1]

So I asked my father at home and also the students' parents about what the Muslim words were because some parents are near the classroom. Some of their classmates also helped me in translating because they know bisaya ang muslim dialect. (*So naga pangutana ko kay papa nga unsay minuslim ani, mao to gina tudloan ko sa mga parent kay usahay naa raman pud sila dira mag atang. Naa man puy ubang classmate nila nga kabalo mag bisaya og mag minuslim so naga tabang sad sila nako aron maka translate ko).* [Line 8, Participant 2]

What you cultivate for them, the students will follow it all the time. So, from the very beginning, you should be consistent in all your ways in order for the students to follow your ways also. *(Kung unsay imuhang na cultivate sa ilaha, they will follow it all the time. So, from the very beginning, dapat consistent pud ka sa kung unsa imuhang mga pamaagi, consistent ka para, ilaha rapud nang sundon).* [Lines 4, participant 5]

Both problems could be resolved by establishing a mixed learning model and formative assessment system. This method is not conducive to students' timely understanding of self-stage learning effects, and it affects teachers' adjustment (or solution) of the specific links (or problems) that appear in a teaching process [91]. The studies on teaching and feedback processes, which are essential factors for learning and realizing achievements in the context of education, have been carried out to evaluate whether teachers' didactical performance has an impact on student's assessment and use variables mediated by their involvement, relevant practice and improvement [92]. Teachers' emotional behavior has been shown to substantially impact the quality and effectiveness of teaching and learning. Results from this study can guide education practice by following teachers' adjustments on how they should express emotions when they take part in

short group discussions after considering the relevant teaching objectives [93].

4. CONCLUSION

The study aimed to determine how elementary teachers experience teaching environmental literacy in a language-bridging setup. Educating young students about preserving and improving the environment is crucial as environmental issues threaten it. The findings revealed that a holistic approach that includes giving instructions, teachers being role models, observing students' actions, and considering their background in teaching environmental literacy increases engagement and results in a more memorable experience for the students. Teachers agreed that environmental literacy is essential to impart knowledge to the young ones about how they can help keep the environment clean and preserved for the benefit of future generations.

Another key finding of this study is that students and teachers can learn a new language through interaction with each other and with students' parents and classmates. This finding is consistent with the interactionist theory of Jerome Bruner, who states that children learn the language. Still, they require assistance, namely language acquisition system support from their parents or teachers. Hence, parental involvement is suggested to bridge the gap of language barriers in learning.

However, elementary teachers face communication barriers with students during teaching, particularly teachers who are non-native speakers who find it challenging to teach students in a language-bridging setup due to a lack of dialect proficiency. Hence, to overcome this challenge, teachers can use external sources such as maintaining regular communication with parents, incorporating visual aids, and utilizing appropriate teaching methods. Moreover, the study found that two-way learning, where dialect knowledge is pooled between teachers, parents, and students. These strategies help bridge the communication gap and ensure all students can understand and learn effectively. Despite the challenges in teaching environmental literacy in a language-bridging setup due to language barriers, teachers agreed that language transition (translanguaging) or code-switching is effective in teaching and learning.

5. IMPLICATIONS

The research findings of this study have provided valuable insights for elementary school teachers teaching environmental literacy in a language bridging environment. The study has revealed teachers' important role in promoting environmental awareness among their students. These results are linked to the norm-activation model, which explains altruistic and environmentally friendly behavior, enabling teachers to influence their students toward pro-environmental behavior.

One important aspect that emerged from the study is that teachers dealing with students from diverse linguistic backgrounds can benefit from understanding language transition or translanguaging. The study suggests that language transition or translanguaging can effectively teach environmental literacy, especially when students and teachers speak different dialects. This finding can lead to innovations in areas of concern not only for teachers but also for schools. For example, schools should provide learning resources, including translations of students' dialects and contextualized pictures, to help teachers communicate effectively with students. Moreover, a holistic approach must be practiced by teachers for the effective teaching of environmental literacy.

Overall, this study has provided important insights for teachers who want to promote environmental literacy among their students, especially in a language-bridging setup. The future direction based on the findings of the study highlights the critical need for ongoing professional development programs to support elementary teachers facing communication barriers in language-bridging setups. It is essential to prioritize training that enhances teachers' proficiency in dialects and equips them with effective strategies like translanguaging and code-switching to facilitate successful teaching and learning experiences. Moreover, fostering increased parental involvement to bridge language gaps and implementing collaborative two-way learning practices can significantly contribute to overcoming language barriers and enhancing students' comprehension of environmental literacy. By embracing these future directions, schools can create a more inclusive and supportive educational environment conducive to teaching environmental literacy effectively in diverse linguistic settings.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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