



## INSTRUCTORS' AND STUDENTS' VIEWPOINTS ON METHODOLOGIES TO TEACHING ESD THROUGH GREEN EDUCATION

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### ABSTRACT

This study highlights the limited efficacy of current teaching approaches for green education in the university, which heavily rely on transmissive and discursive methods without incorporating hands-on experience learning. To effectively prepare students for sustainable environmental conservation, transformative and implementation-focused approaches are necessary. This mixed-methods study utilized a pragmatic paradigm as its theoretical framework to examine the instructional pedagogies used in green education at Guimaras State University. Data was collected through surveys, interviews, and classroom assessments from a diverse group of participants across six colleges. The study included 300 students and 14 instructors in their first or second year of participation in the green education program, and 100 students and 14 instructors who had previously participated in surveys also provided interview responses. The findings of this research have substantial significance for the promotion of environmentally responsible practices and the development of successful teaching methodologies. The implications suggest that the university ought to provide opportunities for professional development for academics in order to improve their subject matter knowledge for teaching, skills, and pedagogical expertise in ESD across the university curriculum. This is because the implications suggest that the university ought to provide opportunities for professional development for academics. Stakeholders may also need to revise the Green Education curriculum and evaluation in order to incorporate transformative learning opportunities for both students and instructors, which will contribute to the sustainable development of both the Province of Guimaras and the country as a whole.

**Keywords:** *instructors, students, viewpoints, methodologies, teaching, education for sustainable development (ESD), green education*

### INTRODUCTION

Environmental Education has become increasingly important in addressing global environmental challenges, leading to the development of educational programs aimed at guiding students towards understanding and achieving sustainability. One such program is Green Education, which has been implemented in various educational institutions worldwide. However, it is crucial to assess how well the program is being

delivered and to what extent instructors and students perceive it as effective. This research focuses on exploring instructor and student perspectives on methodologies for teaching education for sustainable development (ESD) through Green Education.

There are four components that make up sustainable development: protecting the environment, fostering long-term socioeconomic growth that benefits all people, preserving and advancing cultural traditions, and exercising responsible leadership (Gill et al., 2023). The Philippines aims to institutionalize environmental education across primary, secondary, tertiary, and vocational education levels to enhance the environmental awareness of Filipino students. This aligns with the emphasis on sustainable environmental development found in the nation's education directives.

Therefore, important environmental laws such as the Ecological Solid Waste Management Act (Republic Act No. 9003), the Philippine Clean Air Act of 1999 (Republic Act No. 8749 or the Philippine Clean Air Act of 1999), the National Integrated Protected Areas System Act (Republic Act No. 7586) and the Philippine Clean Water Act of 2004 (Republic Act No. 9275) need to be disseminated in an appropriate manner and to a large extent.

As part of the civic welfare training service component that is required for all baccalaureate degree courses and vocational courses with a curriculum that is at least two years long, the Commission on Higher Education (CHED) and the Technical Education and Skills Development Authority (TESDA) shall include environmental education and awareness programs and activities in the National Service Training Program under Republic Act No. 9163. This requirement is in accordance with Republic Act No. 9163. (Camiro, 2011).

In 2015, Guimaras State College, which is now recognized as Guimaras State University, introduced a new course aimed at equipping young individuals with the foundational abilities for them to engage in natural heritage conservation, promotion of environmentally responsible resource utilization, and prevention of ecological decline. The introduction of this course was a step towards building a cohort of students who are actively involved in safeguarding the environment.

The Philippine Higher Education Blueprint (PHEB) includes an Environmental Science Curriculum Framework (ESCF) for higher education. The ESCF is primarily designed for the K-12 basic education curriculum in the Philippines. It provides a guide for teachers and educators to promote environmental stewardship, sustainable development, and ecological literacy among students. However, the concepts and principles of the ESCF can also be integrated into higher education programs, including those administered by the Commission on Higher Education (CHED). For instance, some universities and colleges in the Philippines may offer environmental science courses that adhere to the standards and objectives of the ESCF. Moreover, the implementation of the ESCF can also help to support CHED's sustainability policies and initiatives, such as promoting

research on environmental issues, integrating sustainable development practices in academic programs, and raising awareness and involvement in environmental conservation efforts. Overall, the ESCF can contribute to the development of environmentally conscious and responsible citizens, which is vital in promoting a sustainable future for the Philippines.

The ESCF was informed by the goals of green education teaching, which were derived from the UNESCO-UN Environment Programme (UNEP) Intergovernmental Conference convened in Tbilisi, Georgia (USSR) from October 14 to 26, 1977. Notably, the ESCF recognizes that Environmental Science plays an essential role in supporting the Philippines in addressing the Sustainable Development Goals (SDGs) handed over to the 1992 Earth Summit in Rio. Some of the topics that are covered in Environmental Studies, as outlined in the ESCF, include the UN Millennium Development Goals, as well as the concepts, principles, and practices of sustainable development. As such, the ESCF serves as a comprehensive guide for educators and students as they engage in environmentally-focused education.

The integration of Education for Sustainable Development (ESD) into the curriculum through green education can enable the government to meet its objectives of equipping the upcoming generation with the necessary skills, values, and knowledge to address sustainability issues. It is important to note that ESD is not solely about imparting knowledge but includes a shift toward empowering and change-driven methods. This involves utilizing pedagogies such as problem-based learning, interdisciplinary or transdisciplinary teaching, self-directed learning, and collaborative learning, among others. By adopting such innovative pedagogies, instructors can create an environment that fosters analytical thinking and equips learners with the skills and competencies necessary to address complex sustainability challenges. Ultimately, the integration of ESD through green education can contribute to shaping a sustainable future for individuals and society as a whole.

The study aims to contribute to the ongoing conversation on how best to facilitate ESD through Green Education by gaining insight into what methods are currently being implemented, their effectiveness, and possible areas for improvement.

## **THEORETICAL FRAMEWORK**

Several educational and environmental theories fit well with this study on instructors' and students' viewpoints on methodologies to teach Education for Sustainable Development (ESD) through green education.

These include—

1. Constructivism, which emphasizes the importance of making meaning from experiences and the construction of knowledge through active engagement with the learning environment, which aligns with the goal of developing practices that are environmentally and socially sustainable.
2. Transformative learning, which focuses on how learners critically reflect on their values, beliefs, and assumptions, leading to personal transformation and social change. This approach can help promote a shift towards more sustainable practices and increase awareness of environmental issues.
3. Eco-literacy, which aims to promote the understanding of ecological principles and systems thinking. Through education, learners are encouraged to view environmental systems as interconnected and to identify the impact of human behavior on natural surroundings.
4. Hands-on learning, which emphasizes the importance of learning from experience and reflection on that experience. Hands-on learning is well-suited to learning about sustainability, as it can foster a more profound comprehension of the interconnectedness of ecological, social, and economic systems.

These theories helped to provide a theoretical foundation for investigating instructors' and students' viewpoints on teaching Education for Sustainable Development through green education.

## **METHOD**

The inquiry was based on a pragmatic paradigm as its theoretical framework. The study employed a mixed-methods research design that involved surveys, interviews, and classroom assessments to examine the teaching methodologies employed in the area of green education. Participants from the Guimaras State University came from a variety of educational backgrounds and represented six distinct colleges. During the course of the study, there were a total of 300 students and 14 instructors who were in their first or second year of participation in the green education program. There were a total of 100 students and 14 instructors who had previously participated in the surveys, and they were the ones who answered the questions in the course of the interviews.

## **DATA COLLECTION**

### **Surveys**

In order to gain a comprehensive understanding of the perspectives of both instructors and students regarding environmentally conscious curriculum and its correlating analytical thinking practices, qualitative and quantitative data were collected using

surveys that were designed to be brief and efficient yet effective, all within a relatively short time frame. The questionnaire incorporated both close-ended and open-ended questions to ensure that the participants had autonomy in expressing their thoughts on particular topics. Closed-ended questions were of the Likert-type, which is a typical method of data collection (Stolzenberg et al., 2020) and enabled the participants to respond on aspects of the study questions, indicating whether they agree, disagree, or remain neutral. After the fixed-answer items, the survey included open-ended questions that allowed the participants to go beyond the predetermined response categories when expressing their opinions. This cross-sectional study collected data from all of the students and instructors in green education at each college, with a total of 300 student and 14 instructor respondents. During regular class hours, the survey was given to the students to ensure a high response rate and to overcome potential language barriers. The instructors submitted their responses at their convenience.

## **Interviews**

To gain a better understanding of the participants' perspectives on environmentally friendly education, we conducted classroom assessments, surveys, and interviews with both instructors and students. The instructor interviews were carried out in a semi-structured format on a one-on-one basis, while the student interviews were conducted in focus groups consisting of no more than four students to provide a conducive setting for group discussions. The participants were chosen based on a diverse range of abilities, genders, and ethnicities to capture as many different voices and perspectives as possible. To identify and track the data better, each participant in the focus groups was assigned a number. Each interview was digitally recorded and transcribed using computer software, and the sessions lasted from 35 to 100 minutes for instructors and students. We selected interviews over surveys because they produce richer qualitative data, allowing for in-depth research and a better understanding of participants' experiences.

## **Classroom observation**

The main focus of the study revolved around identifying effective instructional strategies and student activities aimed at enhancing environmental problem-solving skills using data collected from classroom assessments. To ensure data accuracy, self-reported data was also gathered through a series of surveys and interviews. However, the Hawthorne effect posed a challenge, as participants may have altered their behavior during the observations. To mitigate this concern, the researcher took proactive steps in explaining the project parameters and reassured instructors that their teaching quality was not under evaluation. An elaborate observation plan was executed to record both broad pedagogical approaches and particular maneuvers utilized by instructors within six classes, each of which lasted between 45-50 minutes and were exclusively conducted in one of the colleges. The figures obtained from various sources were combined to increase the reliability and validity of the study.

## DATA REVIEW

### Qualitative data

Both the 14 transcripts of interviews with educators and the 46 transcripts of interviews with learners who participated in the study were scrutinized. The process employed top-down and bottom-up reasoning methodologies, alongside a constant comparison approach, to encode each interview and focus group script. As suggested by Ochieng et al. (2020), notes were utilized during the coding process. The emerging themes, definitions, concepts, other data, and important exact quotations were documented in memos generated post-coding. Similarly, the responses obtained through open surveys underwent encoding, utilizing the same top-down and bottom-up methodologies for the interviews. Matrix analysis was later implemented to evaluate the occurrence frequency with which each code and category appear for every set of respondents, alongside relevant data obtained from other sources, including interviews and classroom assessments. The printed copy observation framework entries were manually evaluated, and data were analyzed to address the research question, and the findings from the classroom assessments and related data from interviews and surveys were calculated, tabulated, and presented.

### Quantitative data

SPSS version 24 was employed to examine the survey findings. To assess whether the Likert item responses were normally distributed, SPSS 24 was utilized to ensure that the data is normally distributed before undertaking parametric statistical tests, alongside utilizing Kolmogorov-Smirnov and Shapiro-Wilk tests. These tests were employed to decide if parametric statistics, specifically factor analysis and group comparison analysis, were appropriate (Sellbom & Tellegen, 2019). However, due to the small sample size of instructors and the presence of univariate and multivariate non-normality, descriptive statistics were utilized to summarize data, including the Likert items for collecting responses from both students and instructors (Mikkonen et al., 2022). Consequently, SPSS 4 was used to determine the frequency of responses from students and instructors.

## RESULTS

The analysis of the research findings is structured around three main themes: the promotion of analytical thinking, the specific instructional activities that were implemented, and the challenges associated with teaching green education. Information indicating the source of the data, whether from student surveys [S, S], instructor interviews [T, I], or focus groups [FG], is provided within parentheses after each citation. Encouraging analytical and deductive reasoning is a way to promote analytical

thinking in the classroom, as found through interviews conducted with instructors. The majority of educators reported encouraging analytical thinking by requesting that students explain or justify their responses to inquiries, using questions such as "how" and "why." For example, one instructor cited questioning students on the relationships between genetic diversity and species diversity, as well as the connection between species diversity and the overarching concept of biodiversity, to promote analytical thinking. The activity was designed to increase in complexity as the students progressed. [T, I].

Out of the six classrooms observed, five stimulated higher-order thinking through instructors' inquiries directed at students. A vast majority of educators, as revealed through the survey, reported that they promote analytical thinking among their students. One of the primary objectives of the green education program was to foster students' analytical thinking abilities, and instructors utilized various approaches to accomplish this goal. The results of various surveys, interviews, and classroom assessments demonstrated that most instructors encouraged students to think critically, emphasizing their participation in environmentally conscious curricula, such as articulating their own perspectives and justifying their opinions. Students corroborated their affirmations, reporting that they were involved in various analytical thinking exercises tied to environmental education. Among the most effective analytical thinking methods used by students were providing justifications and considering new perspectives. The majority of students were confident in countering instructors' claims, and around half of them challenged the information provided in their textbooks. The outcomes of this study indicated that students leveraged higher-order thinking skills for environmental education. Instructors and students agreed that soliciting diverse perspectives and justifications was an effective approach in developing analytical thinking skills. These strategies were commonly used in green education classes, indicating their wide prevalence.

### **The practical, actual teaching and learning methods used**

Both classroom observation and interviews yield visible insights into the teaching and learning practices employed in green education programs. Focus group interviews revealed that over a quarter of the students did not have access to hands-on learning opportunities during their Environmental Science lessons. For instance, one participant mentioned, "We aren't carrying out hands-on activities like engaging in field research and conducting experiments" [FG]. Moreover, due to the shortage of instructors, group presentations were scarce, as mentioned by nine instructors and 27 students. For instance, one participant stated, "We resort to presentations whenever we can" [T, I]. Students also reported conducting group presentations in which they were assigned a topic to research and present [FG]. Lastly, the instructional technique of discussion was underutilized in the green education curriculum. Observations indicated that in five out

of six observed classes, instructors engaged students in group discussions and presentations, which were considered typical classroom activities, e.g., reading from textbooks, collective problem-solving and debriefing learning. Although interview participants reported verbal communication to be the most common classroom activity, survey responses suggested otherwise, with instructor talk being reported more frequently. The survey results might be more reliable since interviewees may not have counted talking/listening to instructors as an "activity."

### **Wider research and reflection**

In the course of the interviews, two research and reflection practices which were not commonly mentioned include maintaining environmental profiles and conducting book-based research projects. Environmental profiles entail collecting information on the environment and presenting written opinions supported by media quotes, and were emphasized by 50% of educators. Instructors direct the students to keep an environmental profile, much like writing in a journal. If a subject related to ES comes up, the children are obligated to procure a picture or newspaper clipping that corresponds to it and fixate it into their book. If they complete this activity, the teacher can be informed that the children have done their research. They must put their opinions and perspectives into writing and explain the issue's origins. Thus, it seems that children have acquired some knowledge of ES's importance in keeping the environment safe. [T, I]. Students mentioned working on projects such as "I am working on a management project and composing an article on the negative effects that accompany it" [FG]. An educator made a similar statement, saying, "I carried out a project last year that entailed composing an article about issues related to the environment." [T, I]. Since such assignments were to be completed outside of class, students were expected to work at their own pace with no supervision in the classroom. As a result, no survey data was available on these activities because they were not considered while developing the survey tool.

### **Textbook-based individual activities**

In the realm of ecologically conscious education, minimal instructors and pupils advocate for the reading aloud of informative materials. Although the interview data suggests that the dependence on textbooks is infrequent, observations indicate that some educators stimulate pupils to read passages from textbooks in four out of six courses surveyed. According to a study conducted, textbook reading ranks fourth aptly for student responses and third aptly for instructor responses among the most commonly reported activities. Merely 18 of the surveyed students referred to partaking in textbook-based activities, including question-answering, during environmentally conscious education sessions. These findings differ from the results of the questionnaire, where working with textbook exercises was the second most frequently reported activity in-class. It is essential to note that even though the interviewees might

not have recognized solitary textbook-centered work as an "activity," such a practice transpired during classroom observation.

### **Transmissive activities**

In the course of the interviews, only a few students reported participating in a lecture where they had to listen to their instructors, and none of the instructors mentioned it. Nevertheless, the classroom assessments revealed that in all of the classes, instructors had conducted lectures. Additionally, both students and instructors mentioned in the survey that the most frequently carried out classroom activity was instructor-led discussions. Perhaps the participants' interpretation of the word "activity" in the course of the interviews resulted in this inconsistency. It's possible that they do not view listening to the instructor as an active classroom engagement in the same way they perceive other physically involved "activities." Despite the discrepancy in the results, the substantial amount of responses in figures 4 and 5 suggests that instructors' discourse occurred frequently. It stands out as a consensus across numerous observations and remains the most apparent characteristic of the environmental science lessons.

### **Challenges to Teaching**

#### **Time and timetabling**

Most educators pointed out that inadequate class time is among the difficulties they encounter in teaching green education. For instance, the following comments were made by instructors: "Green Education only gets two class periods," [T, I], and "Students aren't given ample time to practice the learned concepts outside of class," [T, I], highlighting the lack of time for outdoor application of the acquired knowledge.

#### **Subject-related barriers**

In line with the findings of the study, approximately half of the educators cited the extensive nature of the green education curriculum as one of the obstacles that must be overcome in order to successfully involve students in various instructional tasks. In addition, the vast majority of lecturers mentioned that "engaging students in activities is a challenging task due to the examination-based assessment method."

#### **Support required**

The need for more teaching and learning resources was expressed by the majority of the instructors, around fifty percent of whom identified a budget allocated for excursions as a necessity for facilitating effective teaching. As an illustration, one of the instructors stated that "support for excursions and outdoor learning in ES requires budget allocation." [T, I].

Another instructor expressed, "Organizing a field trip necessitates the provision of transportation, lodging, and food expenses, making it a challenging task that requires more resources" [T, I].

In Environmental Science (ES), students are required to maintain an environmental profile in which they research and describe incidents related to sustainability and submit to the instructor [FG].

One instructor suggested that excursions would enhance the delivery of the material covered in the textbook, which contains many topics pertaining to exploring the environment or community nearby.

However, the resource scarcity [T, I] is a disadvantage to carrying out excursions and other forms of active learning.

Data collected from instructor interviews and surveys revealed a resource scarcity, limited time, a large syllabus, and exam-based assessments as factors that impeded the successful execution of student-centered and paradigm-shifting techniques to teaching green education.

## **DISCUSSION**

### **Opinions of Instructors and Students on Promoting Analytical thinking**

The fact that educators encourage students to validate their ideas and engage in discussing various perspectives on issues related to sustainability indicates that there is alignment with the expectations presented in the ESCF (Kingsbury, 2022), which emphasizes the necessity for analytical thinking and participation in complex problem-solving. The emphasis of fostering analytical thinking and problem-solving abilities in Filipino students as outlined in both the Philippine Higher Education Blueprint (PHEB) is further evidence supporting the significance of environmentally conscious curriculum. It is noteworthy that the efforts of these educational plans are in line with Bloom's taxonomy, which notes how green education can serve as a tool for higher-order thinking activities that promote sustainable living, as demonstrated by Mongar (2022). Additionally, Sass et al. (2020) emphasized how analytical thinking empowers students with the capacity for autonomy and decision-making, which is especially useful when it comes to resolving the challenging issues associated with sustainability on a variety of different levels. By engaging students in conversations about challenging socioeconomic issues and major environmental difficulties, it would be feasible to further encourage this way of thinking in the creation of sustainable solutions to the current issues (Verhoeff, 2023). In order to develop higher-order thinking among their students and the invention, planning, and implementation of environmentally friendly solutions to the

issue at hand, instructors can relate their lessons to local environmental concerns (Whalen & Paez, 2021).

According to the ESCF, critical evaluation of urban planning regulations and investigation and analysis of the impact of human activities impacting the environment and natural resources are two learning outcomes. Despite the promotion of higher-order thinking skills by instructors through questioning and sharing of viewpoints, it is unclear if this is always implemented in practice (Boateng, 2022).

Adopting this pedagogy could potentially aid students in acquiring advanced analytical thinking skills that align with UNESCO's description of analytical thinking as "...being able to question established norms, practices, and beliefs; evaluate one's values, perspectives, and actions; and adopt a position in the discussion of sustainability." The implementation of a more critical pedagogy in the delivery of green education by instructors could help in achieving these results. This approach has the potential to empower students with a more intricate analytical thinking aptitude.

As suggested by Alam (2022), critical pedagogy could be utilized to promote analytical thinking in students by immersing them in activities that require critical investigation of the factors promoting ecological imbalances (2022). This may necessitate reflection on one's own culture values, personal beliefs, and ability to take appropriate action to solve the issues. It is thought that a socially critical approach empowers students to make judgments and come up with workable solutions to address sustainability concerns in their communities while also giving them the chance to critique current theory and practice (Boluk & Carnicelli, 2019). The ESCF has used this tactic a few times in various circumstances. Students are expected to critically assess "Philippine urban design principles (regulated and guided by the Local Government Code of 1991, the National Building Code of 1972, and the Housing and Land Use Regulatory Board (HLURB) for identifying the areas for change regarding sustainability issues" in order to critically consider how human capital development affects the environment and what kind of sustainability could support environmental sustainability. Students will be able to consider critically, for instance, how economic development affects the environment and what types of sustainable development might assist environmental sustainability. To effectively teach green education, it may be necessary to involve students in activities that encourage them to critique current policies and practices, reflect deeply and critically on the causes and effects of related problems, and suggest solutions to improve sustainability in their local community.

### **Physically Involving Educational Activities**

The absence of hands-on instructional tasks in green education programs presents a strong contrast between the hands-on learning plainly recommended throughout the ESCF and the absence of hands-on instructional tasks noted by both instructors and students (Moothathamby, 2021). For instance, the perspective

"Transforming understanding into action" in the ESCF (Hanson & Burke, 2021) mandates that the teaching of green education should encourage the development of: Diverse skills among students through an activity-based approach that includes indoor and outdoor activities, hands-on experiences, experiments, case studies, surveys, debates, discussion, teamwork, and folk art, etc. It encourages educators to engage students in ongoing experiments, inquiries, and projects.

Furthermore, green education facilitates the integration of scientific concepts and principles into practical real-life scenarios, as highlighted by the author of (p.6). According to the ESCF (Moothathamby, 2021), effective delivery of the curriculum requires the incorporation of a local context, which enables students to explore and engage with their surroundings. It is essential that students receive instruction on how to approach environmental issues, as well as develop a sense of social and individual accountability.

The findings of this investigation expose a notable disparity between the ESCF's emphasis on practical elements and the actual implementation of hands-on learning. The deficiency of experiential activities might be attributed to various factors mentioned earlier, including educators' limited expertise in green education, the extent of the syllabus, inadequate finances, restricted class hours, and the influence of knowledge-based tests. Knowledge-based assessment can compel instructors to exhaustively "cover" the lessons included in the exhaustive textbooks assigned to them. The instructors acknowledged that taking students on excursions was an efficacious pedagogical approach to teaching green education. Consequently, the shortage of field excursions in their teaching and learning processes resulted from a scarcity of resources rather than a lack of significance.

Although the ESCF highlights the significance of hands-on learning within green education, there appears to be a deficiency, which is a pressing concern. Hands-on hands-on instructional tasks could be an effective method of encouraging students to develop their own understanding, values, attitudes, and skills as part of an environmental education program (Alam, 2022). Independent learning and knowledge construction have been identified as more effective methods than passive instruction when it comes to student learning. Moreover, hands-on learning usually involves social interactions, which can be helpful in reaching the ESCF's objectives since children often acquire knowledge through social engagement with instructors and peers (Volman, 2021).

In addition, the perspective of the Philippine Higher Education Blueprint (PHEB) as it relates to the curriculum acknowledges and emphasizes the necessity for instructors in Filipino classrooms to utilize constructivist instructional strategies. This requirement is addressed in the paper.

In order to address sustainability issues, participation in such hands-on instructional tasks could provide students with the opportunity to gain knowledge about the environment by observing, analyzing, and building new insights (Alam, 2022). Furthermore, experiential education has the potential to improve students' understanding of their local natural ecosystems and sustainability challenges (Yli-Panula et al., 2019). This has the potential to influence pupils' views and perceptions of the natural world (Orgill et al., 2019). Substantial research demonstrates that hands-on learning is useful for creating the beneficial principles, attitudes, and abilities necessary for participation in addressing sustainability-related issues (Aust et al., 2020).

As stated by UNESCO, students should be tasked with conducting experiments to undertake scientific research on environmental issues such as air and water pollution that are prevalent in their local community (2017b). According to Aust et al., hands-on, practical education can aid students in developing environmentally conscious attitudes and behaviors (2020). As suggested by the Environmental Stewardship and Citizenship Foundation, instructors should organize a variety of hands-on instructional tasks to achieve the goal of engaged and productive community builders who can find solutions to ecosystem disruptions, which is the foundation of sustainable environmental conservation.

### **Transmission-Related Actions**

According to the majority of lecturers and students, "instructor speak" is widely used in green education. The apparent pedagogical preference of the instructors for the traditional method of lecturing may be the result of a lack of professional development on the part of the instructors, a lack of instructional time, a massive syllabus, a resource scarcity, and an absence of assistance.

In addition, instructors' pedagogical approaches may be impacted by their own college experiences and the didactic courses they taught during their teacher preparation program (Altas&Enisa, 2020). There is some evidence indicating that instructor educators mostly employ lectures with instructors, indicating that the instructors at the colleges of Guimaras State University need to use more learner-centered teaching strategies. [Bibliography needed] Yet, cultural factors also influence the decisions instructors make about the transmissive strategies they employ to teach environmental education. It could be challenging to implement student-centered approaches that differ from the established pedagogy in the Philippine instructional model due to the cultural belief that instructors possess knowledge, and students are passive recipients of that knowledge (Blyth &Thoms, 2021). There is a chance that the educational orientations of instructors toward instructor-centered procedures are related to examination-based assessment. According to Baghousi 2021, exams that require pupils to regurgitate knowledge can result in strategies that place an emphasis on the instructor.

Almerino et al. (2020) emphasized that student examinations have a significant impact on determining the effectiveness of the instructional model, the college's status, students' progress to higher levels or occupational education, as well as the level of instructor performance in the Philippine context. Examinations also play a role in instructors' pursuit of further education or career advancement. Moreover, the pressure to prepare students effectively for exams and complete the course syllabus on time may discourage the use of constructivist and hands-on learning approaches that are encouraged in green education. By reducing the importance of culminating exams and giving preference to alternative formative evaluations, the pressure on instructors of environmental education to solely focus on knowledge transmission can be alleviated. However, the diverse perspectives and needs of various stakeholders must be taken into account when making such changes to assessment and credentialing. The possibility of using alternative evaluations requires further exploration and evaluation within the larger context of college assessment processes in the Philippines.

### **Verbal Communication**

The instructors who conducted the environmental education sessions indicated that the regular use of Verbal Communication allowed students to communicate with one another and increase their knowledge through group interactions. In addition, Verbal Communication were conducted rather frequently in the majority of green education sessions. In addition, the Educational Strategies and Content Framework (ESCF) (Zhang & Hwang, 2023), advocates the establishment of a "student-centered constructivist learning environment" that complements textbooks. In contrast to the hands-on experiential components of the Environmental Science Curriculum Framework (ESCF), the discursive components of the framework seem to be more geared towards a classroom setting. Vygotsky (1962) posits that social interactions with instructors and peers enable students to authenticate and validate acquired knowledge, thereby facilitating the acquisition of new knowledge (Chuang, 2021). With opportunities for collaborative thinking and mutual respect for each other's perspectives, students engage in creative problem-solving activities and community initiatives. Furthermore, Zhang and Hwang (2023) highlight that engaging in problem-solving activities through social connections facilitate collaborative cognitive processes among peers. Thus, it can be deduced that the implementation of discursive components in environmentally responsible education has a positive impact on students' educational development.

Yet, the frequent use of discursive techniques and traditional lectures by instructors, along with the relatively limited number of experiential approaches, may cause students to lose interest in green education and create a repetitive classroom environment. This is because traditional lectures have existed for a long time and have been demonstrated to be successful. In addition, it is probable that teaching all of the content will not be an effective strategy to stimulate deeper learning and the development of Skills necessary to attain the goals and objectives related with the subject's instruction. The objectives and goals are relevant to teaching the subject. Instructors may find it helpful to adjust

their teaching methods to enhance their students' motivation towards learning and provide diverse opportunities for learning to achieve several learning outcomes.

### Teaching Challenges

Anderson et al. (2006) found that instructors often face challenges in adopting outdoor education due to limited funding, lengthy curriculum, and evaluation systems based on examinations in ES. Despite time constraints, instructors prioritize teaching and completing the course syllabus. However, green education must equip students with the necessary core competencies and experiences to address environmental challenges and promote sustainable environmental conservation in line with Filipino policy papers. This can be achieved through experiential education activities (Prince, 2017). If instructors lack support, resources, and time to teach green education, the effectiveness of the program in inspiring students to take action against environmental issues may be limited. This suggests a need for REC and principals to allocate more time and resources to green education to ensure students receive high-quality instruction.

In addition, due to the difficulties posed by inadequate funds, limited time, an extensive syllabus, and the obligation to cover the curriculum for examination-based evaluations, instructors may opt to plan excursions within close proximity of the college campus.

In the Philippines, most university campuses have rich natural surroundings and are located near forests and communities, making them ideal for teaching green education. On-campus excursions provide an interactive and enjoyable approach for learning green education while exploring local ecological issues and taking action to promote sustainable environmental conservation (Ikeda et al., 2019). This approach allows students to apply theoretical knowledge and skills to practical environments and connect with the community (UNESCO, 2017b), which is vital in achieving environmental sustainability. Nevertheless, some instructors find examination-based evaluation a critical issue when it comes to teaching ES; this is supported by extensive research. Exam requirements can affect instructional methods, prompting instructors to prioritize finishing the curriculum over implementing exciting and engaging green education activities (Shahrasbi, 2021). It can also stifle innovative teaching approaches, which can limit students' learning experience (Kumar, 2020). Moreover, the traditional exam-based evaluation only measures declarative and theoretical knowledge and various abilities (Marcial, 2021), making it inadequate in evaluating learning outcomes and skills needed to impart effective green education objectives (Cortinovis&Geneletti, 2020). Therefore, the Commission on Higher Education should reconsider the role and influence of summative evaluation in green education to promote and encourage flexible and transformative teaching possibilities, including active community participation and taking action. This approach can lead to more effective green education teaching and learning outcomes.

## CONCLUSION

The current teaching approaches for green education in the university, which heavily rely on transmissive and discursive methods without incorporating hands-on experience learning, have limited efficacy in achieving the university's goals. It is essential to use transformational and implementation-focused methods to provide students with the required skills, expertise, values, and mastery to tackle sustainable environmental conservation.

## IMPLICATION

The university should provide career enhancement opportunities for academics both before and during their service can be availed, referred to as pre-service and in-service, respectively to improve their subject matter knowledge for teaching, skills, and pedagogical expertise in ESD across the college curriculum. There is a need for stakeholders to closely analyze the Green Education program of study and the evaluation process. Such a review would be aimed at identifying potential gaps or shortcomings in the existing curriculum and assessment methods that may hinder the integration of transformative learning opportunities for both students and instructors. These transformative learning opportunities are geared towards developing relevant knowledge, skills, and attitudes that support environmental sustainability. Once these opportunities are identified and integrated into the curriculum and assessment process, it would be easier to empower students and instructors with the necessary tools to tackle environmental conservation issues in a meaningful way. These actions are essential for meeting the university's goals and contributing to the sustainable development of the Province of Guimaras and the nation as a whole.

## RECOMMENDATIONS

Based on the implications given, here are some recommendations for addressing the limited efficacy of current teaching approaches for green education in the university:

1. Develop and implement transformative and implementation-focused approaches for teaching green education to help students gain the necessary knowledge, values, skills, and competencies to take action toward sustainable environmental conservation.
2. Provide professional development opportunities for both pre-service and in-service academics to improve their subject matter knowledge for teaching, skills, and pedagogical expertise in ESD across the college curriculum. This will ensure that educators are well-equipped to teach using transformative and implementation-focused approaches.

3. Conduct a review of the Green Education curriculum and assessment to ensure that it incorporates transformative learning opportunities for students and instructors to support environmental sustainability. This will encourage a more hands-on style of learning that can be very effective.

4. Encourage the establishment of partnerships with industry, NGOs, and other organizations to enhance the practical side of learning, thereby increasing relevancy and effectiveness in the application of knowledge.

By implementing these recommendations, the university and its stakeholders can effectively meet its goals and contribute to the sustainable development of the Province of Guimaras and the nation as a whole.

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