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Climate Change in the English Language Classroom: Basis for the Development of an Eco-linguistics Material

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Abstract: This study investigates the awareness and perception of climate change among university students and examines its impact on language learning to inform the development of eco-linguistics materials for English language classrooms. Employing a mixed-methods sequential explanatory design, the research surveyed 97 students across three academic programs—English Language Studies, Criminology, and Fisheries—at Isabela State University, Echague Campus. Quantitative findings revealed that students in English Language Studies and Criminology exhibit an advanced level of climate change awareness, while Fisheries students demonstrate an average level. Across all groups, students generally agree that climate change affects their language learning, particularly noting the disruptive influence of extreme weather events alongside psychological and physical impacts on academic performance and motivation. Qualitative data further highlight that students' emotional responses and cognitive engagement with climate change topics actively shape their learning experiences, underscoring the importance of integrating relevant environmental content into language curricula. The results suggest that embedding climate change education in language learning not only enhances linguistic skills but also nurtures environmental stewardship and critical thinking. The study concludes that targeted educational interventions and interdisciplinary teaching strategies are essential for cultivating informed, proactive global citizens capable of addressing climate challenges. These insights provide a solid foundation for curriculum development that bridges language acquisition and environmental education.

Keywords: *Climate Change Awareness, Language Learning, Eco-Linguistics, University Students, Educational Strategies*

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I. INTRODUCTION

Climate change has become a pressing global issue with far-reaching consequences that extend well beyond environmental degradation. As future leaders and decision-makers, university students play a crucial role in addressing the challenges posed by climate change. This increasing urgency has prompted a global dialogue about its systemic effects, not only on ecological biomes but directly on the structural continuity of education and classroom learning processes. As climate change becomes an omnipresent topic in societal discourse, it is essential to understand how students perceive this phenomenon and how their awareness influences their educational engagement, particularly in language learning contexts.

Previous studies highlight the importance of integrating climate change education into university curricula to foster informed and proactive global citizens capable of tackling environmental issues (Barreda, 2018; Nieves et al., 2024). Heightened environmental awareness can foster a sense of responsibility and urgency among students, fundamentally shifting their academic drive. Furthermore, Eustaquio (2025) underscores that integrating local narratives and socio-environmental realities into higher education deepens cultural identity while bridging the gap between abstract academic theories and active social responsibility.

However, empirical research on the specific impact of climate change awareness within the parameters of language learning remains limited. The level of understanding regarding climate change among university students varies significantly

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across regions, cultural backgrounds, and specific disciplines (Ofori et al., 2023; Prasad & Mkumbachi, 2021). Factors such as the student's program of study, year level, and localized socio-cultural elements heavily influence their foundational environmental knowledge (Ofori et al., 2023). This unevenness points to a need for localized pedagogical instruments. As Eustaquio and Gannaban (2024) observe, understanding unique learner readiness and technological attitudes is a mandatory prerequisite for developing effective, contemporary language instructional materials.

By assessing student awareness of climate change and its perceived impacts on language acquisition, this study aims to contribute to the development of contextualized educational strategies. Integrating these paradigms allows educators to enhance language proficiency while simultaneously cultivating environmental stewardship. Ultimately, this research seeks to identify the pedagogical implications of merging climate literacy with language curricula, exploring how students' emotional and cognitive responses shape their classroom experiences.

➢ *Research Questions*

This research paper explores the intersection of climate change awareness among students and its implications for their language acquisition and learning experiences. Specifically, it answered the following questions:

- What is the profile of the respondents in terms of course, year level, and gender?
- What is the level of awareness and knowledge of the respondents on Climate Change?
- What is perception of the respondents on the effects of climate change in their language learning?

II. REVIEW OF RELATED LITERATURE

Research indicates that student awareness of climate change varies significantly based on educational background, age, and available media channels. A foundational study by Pitpitunge (2013) involving high school students revealed that while learners demonstrated a basic understanding of climate change concepts, they frequently lacked comprehensive knowledge regarding long-term effects and mitigation strategies. This local exposure to unvetted information often introduces persistent misconceptions.

To remedy this, a systemic baseline understanding of text structures must be established. Eustaquio (2019) notes that meta-syntactic and structural literacy in local textual traditions enhances a student's capacity to decode complex thematic materials. Similarly, Ofori et al. (2023) discovered that while a significant majority of undergraduate students in Ghana recognized climate change as a real, anthropogenic phenomenon, notable gaps remained regarding its broader systemic impacts, such as public health risks. This disconnect reinforces the premise that higher education institutions are critical agents in refining student comprehension.

Student perception of climate change is deeply linked to environmental behavior. Comparative studies in Pakistan examining students and teachers revealed that while teachers exhibited higher overall awareness, both groups shared deep concerns regarding climate risks. However, students demonstrated minimal engagement in actual low-carbon practices, indicating a clear disconnect between cognitive awareness and proactive lifestyle choices.

This gap highlights the necessity of evaluating the communicative and rhetorical frameworks that students encounter. Raymundo and Eustaquio (2024) observe through critical discourse analysis that public persuasion and rhetorical framing heavily shape public opinion and civic behavior. Therefore, pedagogical strategies must target emotional reflexivity. A student's emotional response to environmental degradation directly influences their willingness to engage in ecological advocacy.

The intersection of climate change awareness and language learning is an essential emerging field within applied linguistics. Language acquisition is not merely an isolated cognitive process; it is heavily mediated by student motivation, situational attitudes, and environmental contexts. Incorporating climate change themes into language curricula enhances vocabulary acquisition and boosts the student's ability to articulate complex, abstract global problems.

This aligns with wider stylistic assessments of texts. Ibarra and Eustaquio (2026) demonstrate that evaluating linguistic mechanisms, repetition, and syntactic variations in thematic texts deepens student engagement and pedagogical retention. Furthermore, participatory, interdisciplinary teaching models that connect ecological science with language arts encourage semantic retention and long-term knowledge processing. Rather than teaching grammar in isolation, holistic instruction empowers students to become vocal advocates for sustainability, merging language skills with global civic agency.

III. METHODOLOGY

➢ *Design*

This research employs quantitative descriptive design to gather the needed data. This design was used to describe the data on the awareness and perception of the respondents on the effects of climate change in the English language classroom.

➢ *Respondents of the Study*

The quantitative sample consisted of 97 undergraduate students currently enrolled in the Bachelor of Arts in English Language Studies (BAELS), Bachelor of Science in Criminology (BS CRIM), and Bachelor of Science in Fisheries (BSF) programs at Isabela State University, Echague Campus.

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➢ *Instruments*

This study used an adopted questionnaire from the study of Gazzaz and Aldeseet (2021) titled "Assessment of the Level of Knowledge of Climate Change of Undergraduate Science and Agriculture Students" to answer the questions posed in the study.

➢ *Data Gathering Procedure*

To ensure credibility of results, permission from authorities were sought by the researchers prior to the gathering of data. Consent were also secured from both the respondents and participants of the study. After gathering the needed data, the statistician computed the data using SPSS.

➢ *Statistical Analysis of Data*

Frequency counts and percentages were used to treat the quantitative data. The following scales were also used in the study:

Table 1. 4-point Likert Scale

Scores	Level of Awareness and Knowledge	Knowledge of Causes of Climate Change
15-20	Advanced	Advanced
10-14	Average	Average
6-9	Developing	Developing
1-5	Poor	Poor

IV. RESULTS AND DISCUSSION

Table 2. Respondents' Profile in terms of Course, Year Level, Gender

Course	Frequency	Percentage
Bachelor of Arts in English Language Studies (BAELS)	44	45.4
Bachelor of Science in Criminology (BS CRIM)	42	43.3
Bachelor of Science in Fisheries (BSF)	11	11.3
Total	97	100
Year Level		
1st Year	31	32.0
2nd Year	47	48.5
3rd Year	11	11.3
4th Year	8	8.2
Total	97	100
Gender		
Male	41	42.3
Female	52	53.6
LGBTQ+	4	4.1
Total	97	100

The statistical data presented student population, specifically focusing on their academic courses, year levels, and gender distribution. Bachelor of Arts in English Language Studies has 44 students (45.4%), Bachelor of Science in Criminology: 42 students (43.3%), and Bachelor of Science in Fisheries: 11 students (11.3%). These data indicate a strong preference for the Bachelor of Arts in English Language Studies and Bachelor of Science in Criminology among the students.

As for Year Level Distribution, 1st Year 31 students (32.0%), 2nd Year 47 students (48.5%), 3rd Year 11 students (11.3%), and 4th Year 8 students (8.2%). Majority of students are in their 2nd year, suggesting a significant retention rate in the earlier stages of their studies.

Moreover, for gender distribution Male: 41 students (42.3%), Female: 52 students (53.6%), LGBTQ+: 4 students (4.1%). The gender distribution shows a higher number of female students compared to male students, with a small representation of LGBTQ+ individuals. Overall, the data reflects a diverse student body with a notable inclination towards certain academic programs and a balanced gender representation.

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Table 3. Respondents' Level of Awareness and Knowledge in Climate Change According Course

Year Level	Mean Score	Description
Bachelor of Arts in English Language Studies	15	Advanced
Bachelor of Science in Criminology	15	Advanced
Bachelor of Science in Fisheries	14	Average

Table 7 presents the level of awareness of the respondents regarding climate change, segmented by their respective courses. Both the Bachelor of Arts in English Language Studies and the Bachelor of Science in Criminology students have a mean score of 15, categorized as "Advanced." This indicates a high level of awareness of climate change among students in these programs, suggesting that their curriculum or personal interests may foster greater understanding of environmental issues.

In contrast, students pursuing a Bachelor of Science in Fisheries have a slightly lower mean score of 14, categorized as "Average." This may indicate that while these students possess a reasonable awareness of climate change, their level of engagement or knowledge is not as in-depth compared to the other two groups.

Overall, the data suggests that while climate change awareness is high among students in most programs, there are slight variations depending on their field of study, with those in environmental or societal-focused disciplines (like English Language Studies and Criminology) demonstrating more advanced levels of awareness.

Table 4. Perspective of BAELS respondents on the Effect of Climate Change on Language Learning

1. Bachelor of Arts in English Language Studies Students		
Statement	**Mean Score**	**Description**
1. Climate change affected my ability to learn topics in our English/language class.	2.52	Agree
2. I believe that climate change has a negative impact on my language learning.	2.64	Agree
3. I believe that climate change has affected my academic performance.	2.66	Agree
4. Climate change has psychologically and physically affected my language learning.	2.80	Agree
5. Extreme weather events can disrupt my language learning.	2.89	Agree
6. My motivation to learn the language is decreased because of climate change.	2.48	Agree
Average	**2.66**	**Agree**

The table details the perspectives of Bachelor of Arts in English Language Studies students on how climate change affects their language learning. The mean scores for each statement range from 2.48 to 2.89, all falling within the "Agree" category, reflecting a general acknowledgment of climate change's impact on their academic experience.

The highest mean score (2.89) is associated with extreme weather events disrupting language learning, suggesting that these students feel particularly affected by environmental disruptions. The second-highest score (2.80) relates to the psychological and physical impacts of climate change, indicating a recognition of its broader effects on their learning experience.

Other aspects, such as the impact on learning ability (2.52) and academic performance (2.66), are also acknowledged but to a lesser extent. The lowest score (2.48) pertains to a decrease in motivation due to climate change, indicating that while students recognize this effect, it is less pronounced compared to other impacts.

The average mean score of 2.66, categorized as "Agree," suggests a moderate but consistent perception among students that climate change influences their language learning experience. This reflects a broader awareness of the various ways in which climate change affects their studies, although the degree of impact varies.

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Table 5. Perspective of BS CRIM respondents on the Effect of Climate Change on Language Learning

Bachelor of Science in Criminology Students on the Effect of Climate Change on Language Learning		
Statement	**Mean Score**	**Description**
Climate change affected my ability to learn topics in our English/language class.	2.71	Agree
I believe that climate change has a negative impact on my language learning.	2.57	Agree
I believe that climate change has affected my academic performance.	2.79	Agree
Climate change has psychologically and physically affected my language learning.	2.64	Agree
Extreme weather events can disrupt my language learning.	2.81	Agree
My motivation to learn the language is decreased because of climate change.	2.45	Agree
Average	**2.66**	**Agree**

The results outline the perspectives of Bachelor of Science in Criminology students on the effect of climate change on their language learning. The mean scores for each statement range from 2.45 to 2.81, with all falling under the "Agree" category, indicating a consistent recognition of climate change's impact.

The highest mean score (2.81) is related to extreme weather events disrupting language learning, similar to the trend seen in other groups, suggesting a notable awareness of how environmental disruptions can affect their studies. The second-highest score (2.79) is linked to climate change affecting academic performance, indicating that students perceive a tangible impact on their academic achievements.

Other aspects, such as the effect on learning ability (2.71) and psychological/physical impacts (2.64), are acknowledged but are somewhat less pronounced. The lowest score (2.45) pertains to decreased motivation due to climate change, reflecting a moderate recognition of this issue compared to other effects.

The average mean score of 2.66, categorized as "Agree," suggests that Bachelor of Science in Criminology students also perceive a moderate impact of climate change on their language learning. This consistent acknowledgment across various aspects underscores a general awareness of the issue, though the perceived impact varies among different dimensions of their academic experience.

Table 6. Perspective of BSF Respondents on the Effect of Climate Change on Language Learning

Bachelor of Science in Fisheries on the Effect of Climate Change on Language Learning		
Statement	**Mean Score**	**Description**
Climate change affected my ability to learn topics in our English/language class.	2.27	Agree
I believe that climate change has a negative impact on my language learning.	2.55	Agree
I believe that climate change has affected my academic performance.	2.64	Agree
Climate change has psychologically and physically affected my language learning.	2.73	Agree
Extreme weather events can disrupt my language learning.	3.18	Strongly Agree
My motivation to learn the language is decreased because of climate change.	2.36	Agree
Average	**2.62**	**Agree**

The table presents the perspectives of Bachelor of Science in Fisheries students regarding the effect of climate change on their language learning. The mean scores for each statement range from 2.27 to 3.18, with one statement falling into the "Strongly Agree" category, while the others are categorized as "Agree."

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The highest mean score (3.18) is associated with the disruption of language learning due to extreme weather events, indicating a strong perception of how such environmental factors significantly impact their studies. This reflects a heightened awareness of the disruptive effects of climate change.

Other statements show more moderate scores: the psychological and physical impacts of climate change on language learning have a mean score of 2.73, which is slightly higher compared to the lowest score of 2.27 related to the ability to learn topics in English/language classes. This suggests that while students acknowledge the impact of climate change on various aspects of their learning, the perceived severity is generally lower compared to extreme weather events.

The average mean score of 2.62, categorized as "Agree," indicates that Bachelor of Science in Fisheries students recognize a moderate impact of climate change on their language learning, with particular emphasis on the disruptions caused by extreme weather. This reflects a consistent awareness of climate change's effects, albeit with some variations in the perceived intensity.

V. CONCLUSION

The research explored the intersection of climate change awareness and its impact on language learning among university students enrolled in Bachelor of Arts in English Language Studies, Bachelor of Science in Criminology, and Bachelor of Science in Fisheries programs. The findings revealed that overall awareness and understanding of climate change is advanced among English Language Studies and Criminology students and average among Fisheries students. This variation suggests that students in socially and environmentally-oriented programs are more likely to possess deeper knowledge of climate-related issues.

All groups exhibited a moderate but consistent perception that climate change significantly affects their language learning, with the most pronounced effect linked to disruptions from extreme weather events. Psychological and physical impacts of climate change further influence academic performance and motivation, although these effects vary by course and individual experience. Notably, Fisheries students reported the highest sensitivity to climate disruptions, strongly agreeing with the disruptive impact of extreme weather on their studies.

The research affirms that climate change is not only an environmental concern but also a factor influencing educational engagement, emotional wellbeing, and learning outcomes in the language classroom. By examining these relationships, the study highlights the urgent need for educational interventions that both support language development and encourage environmental responsibility.

RECOMMENDATIONS

- *Integrate Climate Change Education Into Language Curricula*

  Incorporate climate change themes into English and language subjects to enhance vocabulary, critical thinking, and student engagement, while fostering ecological awareness.

- *Promote Interdisciplinary Teaching Approaches*

  Use collaborative, participatory teaching methods that combine environmental science and language education, encouraging holistic understanding and retention.

- *Address Emotional and Motivational Factors*

  Educators should recognize the psychological and motivational impacts of climate change. Activities designed to process and discuss climate-related emotions may improve resilience and motivation in students.

- *Strengthen Environmental Advocacy*

  Encourage students to participate in climate action and environmental stewardship projects. Engaging students as advocates can bridge the gap between awareness and proactive behavior.

- *Customize Educational Interventions by Discipline*

  Tailor climate change awareness programs according to students' fields of study, ensuring that content remains relevant and impactful for each group.

- *Enhance Data Collection and Feedback Mechanisms*

  Implement regular assessments of climate awareness and educational impact, and use student feedback to continuously improve curriculum design.

- *Support Vulnerable Student Populations*

  Provide additional support to students particularly affected by climate-related disruptions, especially those in fields proven to be more sensitive to environmental changes.

By adopting these recommendations, educational institutions can develop more resilient, informed, and proactive learners who are equipped to face the challenges of climate change within and beyond the classroom. The research underscores the importance of holistic education that integrates linguistic development and environmental consciousness, ultimately empowering students to become responsible global citizens.

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