

Climate Change-Based Speaking Instructional Material for Students at Saint Paul's Junior Seminary: Students' Needs Analysis

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ARTICLE INFO

Keywords:

climate change;
speaking material;
need analysis;
seminary

Article history:

Received 2024-04-22

Revised 2024-05-12

Accepted 2024-09-02

ABSTRACT

Through education, awareness of the importance of climate change as a global issue can be delivered. Aligned with the encyclical *Laudato si* issued by Pope Francis that mentioned climate change, the seminary as a Catholic school is expected to fulfill the Pope's call. This study aimed to determine the needs of Saint Paul's Junior Seminary students to design English-speaking materials based on climate change. This study used mixed methods with ADDIE development model. The data was obtained through questionnaires and face-to-face semi-structured interviews. The participants of this research were 31 students of the 4th grade at Saint Paul's Junior Seminary and an English teacher. The results of the needs analysis showed that: 1) students still had difficulty speaking English; 2) there were no English-speaking materials that specifically discuss climate change; 3) students needed learning resources that provide English language materials that specifically discuss climate change; 4) there should be more practice speaking English about climate change which will increase students' awareness of the environment, in line with Pope Francis' *Laudato si*. From these needs, it was necessary to develop English-speaking material based on climate change because of the students' inability to speak English about climate change and to increase students' awareness of climate change.

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1. INTRODUCTION

Education is one of the areas that can be accessed to raise awareness of climate change. According to Apollo and Mbah (2021), knowledge of climate change can be integrated into the subject matter so that students can know what climate change is, its causes, and its impacts on the world and humans. The education system's foundation was based on ecology, necessitating new, efficient teaching methods that involve future teachers in active environmental activities. (Nazarenko & Kolesnik, 2018). UNESCO (2021) recognizes the importance of education and training in addressing climate change, making it a central part of the international response.

Discussions about climate change are often associated with climate and weather, which greatly affect the life of living things on earth. Recent research warns that such extreme climate-related events could be

worse than predicted in the near future (Adenle et al., 2017). At the root of climate variability is global warming, which is mainly attributed to carbon-intensive industrialization and associated population growth. It is a key element in the current capitalist world that hampers green development initiatives (Melamed et al., 2016). Therefore, people should raise awareness to the climate change through the environment. Darmawan and Dagamac (2021) discovered that educational policies that raise awareness about environmental problems in Indonesia, especially the increasing bad air quality in the country.

In education, climate change is a broad range of many scientific areas. Research conducted by Monroe et al. (2019) found out the database EBSCOhost was utilized to find 959 unique citation records about climate change education. Of these, 49 sources satisfied the criteria of focusing on assessment of climate change education interventions, including training students in elementary or secondary schools, colleges, and universities. From this research, there are two approach strategies that can be used in climate change-based teaching, such as giving children knowledge about climate change that is personally relevant and meaningful and employing engaging and interactive teaching strategies. One strategy that can be taught is through speaking skills. The ability to speak is an important skill for students who need the ability to convey information so that it is easily understood and briefly felt by the audience, especially if it is integrated with complex topics or problems such as climate change (Azizah et al., 2021).

With global problems that are currently happening to the earth, it is important to integrate learning materials in class with material about climate change. UNESCO (2021) says that the international community also recognizes the importance of education and training in tackling climate change. The United Nations (UN) calls on governments to educate, empower, and engage all key stakeholders and groups in policies and actions related to climate change. Increasing environmental problems such as loss of biodiversity, climate change, and pollution that trigger natural disasters in Southeast Asia, raises hopes for implementing new teaching strategies in schools, especially in Indonesia.

Pope Francis, as the highest leader of the Catholic Church, has also called for the environmental movement of the whole people through the Encyclical *Laudato Si*. Therefore, as an educational institution and also a Catholic school, the seminary must follow the regulations of the government and combine the teachings of the Catholic Church. The seminarians study at the seminary with the hope that they will become Catholic priests who work in various places in Indonesia and abroad as missionaries. So it is important for seminarians to be able to speak English. With the ability to speak good English, seminarians can reach people from various countries, and especially to carry out Pope Francis' call regarding *Laudato Si*.

The application of a new learning strategy is expected to increase environmental awareness and understanding of disaster risk among young people. One of the solutions offered from environmental problems and climate change that is being sought is the production of educational materials that are informative and can be disseminated to the public. Because of this appeal, the researcher realized that the availability of climate change-based materials is still very minimal, especially in integration with English lessons and their implementation in improving skills. At the 4th grade of Saint Paul's Junior Seminary, speaking ability is one of the main focuses, because at this level students will be trained to be able to communicate and socialize with the community. The English teacher at this school said that seminarians in 4th grade learned more about practicing speaking English. Therefore, developing particular material that integrates aspects of speaking English with climate change is critical to achieving this goal.

The first thing to do before developing the materials was to conduct a need analysis. Needs analysis has become one of the most important components of English language teaching, particularly in the material development process (Misesani et al., 2020). According to Sönmez (2019), the goal of need analysis is to identify the target language teaching and learners' needs in order to construct an effective curriculum, generate course materials, and determine language learning activities accordingly. In Indonesia, numerous studies deal with needs analysis related to curriculum design, material development, or instructional materials at various educational levels. Those studies were conducted by Azizah et al. (2020); Septiana et al. (2020); Inderawati et al. (2021); Oktarina et al. (2022); Noto et al. (2022); and Tenridinanti et al. (2022). According to these studies, needs analysis is a significant stage of

development processes whether compiling instructions, developing textbooks, or designing instructional materials. The needs analysis can identify the challenges that students experience, the knowledge or skills that are required, and the instructional approaches that can be applied based on the problems discovered. Furthermore, the needs analysis results might become the key factor that must be considered in the development process to suit student needs.

Andi and Arafah (2017) conducted a need analysis to develop teaching materials for initial speaking skills. Three key findings were identified: teaching strategies, design steps for ELT materials, and a prototype of well-developed course materials reflecting the needs analysis. Menggo et al (2019) have analyzed the target needs and learning needs of different types of learners for content production in the academic English-speaking course. Oliver et al (2013) discussed a study of a second language Task-Based Need Analysis (TBNA) conducted at a residential high school specialized in VET (Vocational Education and Training) for Indigenous students, the majority of whom come from rural communities in western Australia and speak English as an Additional Language (EAL). Yana (2016) assessed students' needs in studying English speaking in order to facilitate speaking syllabus development and found that students desire to practice speaking, participate in classroom activities, and incorporate speaking courses into their English education study curriculum.

Climate change-based teaching materials need to be innovated in accordance with developments in science and technology. Some previous studies have focused on climate change issues in language education. Tenridinanti et al. (2021) developed English report text reading materials based on climate change for eleventh-grade students. Noto et al. (2022) also developed climate change exposition reading materials for eleventh-grade students. Tasyaa et al. (2023) developed descriptive texts concerning climate change for tenth-grade students. Meanwhile Putri et al. (2023) developed virtual drama scripts to bridge climate change and Pancasila Profile dimensions for tenth-grade students. From the results of these studies, there has been some development of English language material based on climate change, but none has discussed the speaking aspect. Arbain and Nur (2017) stated that studying English without speaking is pointless. Therefore, it is important to develop climate change-based speaking material so that students become more concerned about climate changes and the environment as well as sharpen their speaking skills. This study was initiated to gather information on students' needs for climate change-based English-speaking materials for the 4th-grade students at Saint Paul's Junior Seminary.

Accordingly, the researcher need to conduct a need analysis related to student needs as an initial step in developing climate change-based speaking materials. The need analysis carried out included questionnaires and semi-structured interviews that focused on seminary students and English teacher. Therefore, through this research, the researcher wanted to know the perspectives of students and teacher regarding climate change-based speaking material as an attitude of caring for the environment as called by Pope Francis in *Laudato si*.

2. METHODS

This study used a sequential mix method by conducting ADDIE model. The ADDIE model is used in the instructional design to produce an efficient and effective design (Aldoobie, 2015). The ADDIE model was developed in 1975 by Florida State University's Center for Educational Technology for the American Army. This model consisted of five phases, namely Analysis, Design, Development, Implement, and Evaluation. The study was conducted at Saint Paul's Junior Seminary, which is a male-specific dormitory school for future priests and monks. This study involved the 4th grade students, who comprised 31 students. Besides, this study also involved an English teacher at this school.

Questionnaires and semi-structured interviews were used to collect data. The pupils were given the questionnaire, which consisted of 15 questions. The questions used a Likert scale, with three sections: climate change, English speaking skills, and climate change in English language learning. The interviews items for students consisted of 8 questions, while the interviews items for teacher consisted of 6 questions. All the questions from interviews were developed on a theoretical basis. Interviews were done with one English teacher and three students. The English teacher chosen is the 4th grade teacher.

The students chosen are the samples of students taken from the lower, middle, and upper grades based on their grades in the class. The interviews conducted were discuss English language learning in class, especially speaking skills and students' needs for climate change-based English-speaking material. Duration of the interview with students was 12 minutes, and with the teacher, it was 8 minutes.

Data is quantitatively and qualitatively examined. Quantitative approaches are used to assess questionnaire data, and qualitative methods are used to interpret and characterize information gleaned via interviews. In this study, closed-ended questionnaire were used for quantitative method and semi-structured methods such as in-depth interviews are used for qualitative research. This technique highlights individual experiences as well as exchanges between researchers and research participants, which included an English teacher and three pupils from Saint Paul's Junior Seminary. Participants were given certain open-ended questions to which they were free to respond in their own words. Participants were given the opportunity to provide more in-depth and thorough input on climate change.

3. FINDINGS AND DISCUSSION

This study gathered data from students' perspectives that were collected from the students' needs analysis. The first part of the questionnaire was closed-ended questionnaire using likert-scale. The likert-scale provided various responses to the questions or statements given with 1=strongly disagree; 2=disagree; 3=neutral; 4=agree; and 5=strongly agree. The final results represented the highest percentage of the students' responses to each questionnaire question.

Table 1. Results of closed-ended questionnaire of students in Saint Paul's Junior Seminary

No.	Statements	Percentage					Final Result
		1	2	3	4	5	
A. Climate Change							
1.	I know the problem of climate change.	3.2%		3.2%	67.7%	25.8%	Agree
2.	Climate change is a real problem in my country.		3.2%		77.4%	19.4%	Agree
3.	Schools must offer space for education about climate change.		3.2%		71%	25.8%	Agree
4.	My school incorporates climate change material into teaching and learning activities.	9.7%	77.4%		12.9%		Disagree
5.	My school has an ongoing program in the area of climate change.	9.7%	87.1%		3.2%		Disagree
B. English Speaking Skill							
1.	Having the ability to speak English is important.				22.6%	77.4%	Strongly Agree
2.	Speaking English is difficult.		41.9%	3.2%	48.4%	6.5%	Agree
3.	I can speak English spontaneously.	9.7%	71%	6.5%	12.9%		Disagree
4.	I often practice speaking skills.		29%	6.5%	64.5%		Agree

5.	I am able to communicate sentences that have been composed in my mind when speaking English.	9.7%	54.8%	3.2%	29%	3.2%	Disagree
C. Climate Change in English Language Learning							
1.	English learning at my school includes material about climate change.	20%	73.3%		6.7%		Disagree
2.	Speaking activities in my school lessons discussed material about climate change.	3.2%	87.1%		9.7%		Disagree
3.	I understand English vocabulary that is appropriate to climate change material.	9.7%	87.1%	3.2%			Disagree
4.	I can speak English which is suitable for material about climate change.	16.1%	83.9%				Disagree
5.	Students need learning resources that provide English speaking material that discusses climate change.		3.2%		58.1%	38.7%	Agree

From Table 1, the statements on the Climate Change part was made to find out the students' knowledge about climate change. Most of the students agreed that they know about the climate change issues. As mentioned by Ojala (2022), climate change affects humanity's survival in the future; it is fundamentally an existential issue. Students also agreed that climate change is a real issue and school must offer space for education about climate change. From the result, the school has not incorporate climate change material into teaching and learning activities. So they just know but don't really understand the issue of climate change because it is not discussed specifically and in depth in learning at school.

The English Speaking Skill part was made to determine the students' understanding of their English speaking skills in the classroom. The results stated that the students were aware that speaking English was important. According to Brown in Madhavi et al. (2023), the most important skill that students will be assessed on in the real world is effective communication. Some of the students felt that speaking English is difficult, especially if speaking English must be done spontaneously without a script. This is evidenced by 54.8% of students who feel that they cannot communicate sentences that have been composed in their minds when speaking English.

In the Climate Change in English Language Learning part, the application of climate change material in English class was found out. The school still did not include specific material about climate change in English language learning. Speaking activities in class still did not discuss climate change. Students' limited vocabulary related to climate change also hinders them from being able to speak English in the context of climate change. The UN Decade of Education for Sustainable Development (DESD) (David Selby, 2013) focuses on climate change as a key action theme, promoting knowledge, skills, attitudes, and values for a sustainable future, promoting critical thinking, problem-solving, and collaborative action. UNESCO (2010) advocates for Education and Sustainable Development (ESD) as the best framework for addressing climate change issues through education, as it addresses root causes, effects, and mitigation methods beyond environmental measures. Therefore, the students agreed that they needed English speaking material that specifically discussed climate change.

Besides the closed-ended questions, there are three open-ended questions. The data represented the highest percentage of students' views or opinions on each question in the open-ended questionnaire.

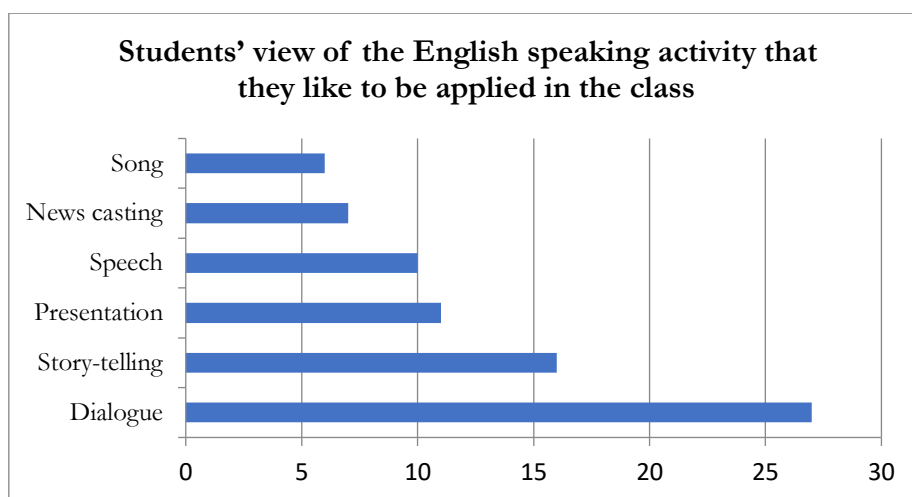


Figure 1. The students' view of the English speaking activity that they like to be applied in the class

The first question was about the English speaking activity that they might like to be applied in the learning process as presented in Figure 1. Every students mentioned few activities that they found it interesting and fun to do. One student mentioned more than one activity that they liked. According to Harmer (2007), speaking is the ability to communicate; it is not only the activity of performing knowledge of language elements but also the ability to process information during communication. Speaking is the ability of someone to process information or ideas through speech production during a conversation in order to communicate information relating to the topic being engaged with (Ikhsanudin & Purwoko, 2022). As stated by Nur (2016), a teacher is always expected to provide engaging-students approaches to enable them to explore their experiences and ideas orally in speaking instruction. Thus, with various fun speaking activities, it is hoped that students will become more active in speaking practice.

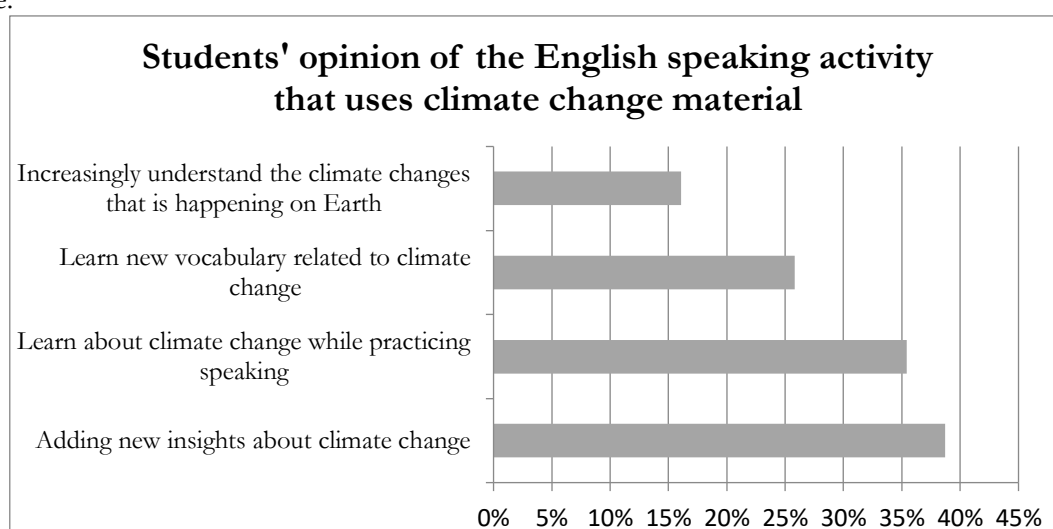


Figure 2. The students' opinion of the English speaking activity that uses climate change material

The second question was about their opinion of the English speaking activity that uses climate change material as presented in Figure 2. Each student mentioned more than one thought about this. The data showed that students agree with the development of climate change-based English speaking materials. According to UNESCO (2010), climate change in education has an important role in assisting the general public, particularly future generations, to comprehend and relate to these challenges. Thus, climate change education should be contextualized and prioritize the transmission of traditional knowledge and practices to students. It is critical for individuals to understand climate change so they may take steps to minimize it (Heriyanto et al., 2023). Therefore, with climate change-based English language material that focuses on speaking skills, students can absorb knowledge about climate change and practice speaking about it.

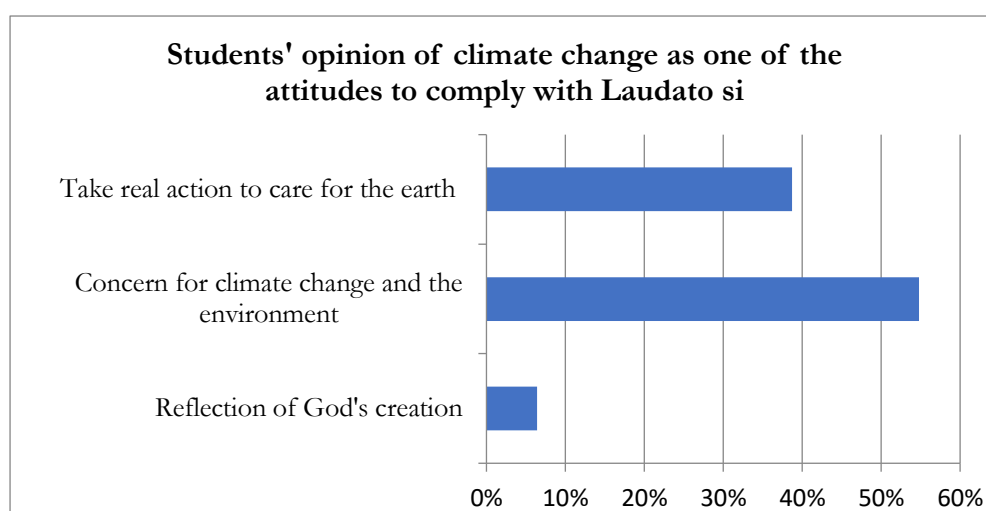


Figure 3. The students' opinion of climate change as one of the attitudes to comply with Laudato si

The last question was about their opinion of climate change as one of the attitudes to comply with Laudato's views, as presented in Figure 3. Students understood that climate change is one of the issues listed in Laudato si by Pope Francis. However, to address current climate change, more than high-quality scientific studies with diverse conclusions are needed (Knight et al., 2019). Therefore, special efforts and approaches based on real activities are needed to overcome environmental disasters through voluntary new evangelization (Bhoki & Pudjiarti, 2022). It is very important to do this by using continuity hermeneutics to increase awareness that humans have lost sensitivity to environmental concerns. In the encyclical Laudato si, Pope Francis also appealed to the church to have a duty and responsibility to enable ecological education that promotes integral ecology, which also includes climate change (Laudato Si, art. 123).

3.1 Semi-structure interview with students

The result was taken from the interview with three students. The question was about the process of English learning in class has been so far. The first student said:

"I can speak a few short words in English."

The second student said:

"In learning English, I experienced difficulties in speaking and my knowledge of English itself was still lacking in detail."

The third student said:

"I really like English, but lately I feel the lessons are less interesting. The material is difficult."

Next, they were asked about the difficulties they experience when learning speaking in class. From their answers, all of them mentioned about vocabularies. As the first student answered:

"My vocabulary is still lacking. In addition, it is supported by the rare use of English (only in class). So I'm not used to English."

The second student answered:

"Limited vocabularies. Spontaneous conversations are difficult."

The third student answered:

"It's hard to putting the words together."

Because of the difficulties they face in learning English, it is necessary to find out what kind of English speaking activities they like to be able to leave the impression that learning English is difficult, so they can enjoy learning English more through fun activities. According to Amoah and Yeboah (2021), the factors inhibiting students' speaking performances included of two main factors: linguistic and psychological. The former includes vocabulary, pronunciation, and grammar, whereas the latter includes worry, shyness, or fear of making mistakes, as well as a lack of desire. Students will struggle to express themselves verbally and will lack confidence (Arini & Wahyudin, 2022). Therefore, the third question was about the kind of English speaking activity that is interesting to do in the class. The first student said:

"I prefer dialogue and songs. I can better understand vocabulary through song lyrics."

The second student said:

"I do also prefer dialogue. In my opinion, I focus more on speaking (practice) than grammar because it's difficult."

The third student said:

"I prefer dialogue, or having a conversation with a friend."

The next question turned to the theme of climate change. Before developing climate change-based English speaking material, it is necessary to explore students' knowledge about climate change. The students were asked about their opinions about what they knew or what things were included in climate change. The first student answered:

"What I know about climate change is weather, changing natural patterns, and the influence of globalization. There are changes that we make ourselves, humans themselves make them."

The second student answered:

"Climate change is a change in weather from hot to rainy, or vice versa, the fact of which is nature itself or human activity."

The third student answered:

"As far as I know, climate change is a change in the weather. From what I learned earlier, human activities that cause a lot of damage or climate change, for example from the heat it suddenly rains. Well, there are many activities such as machine tools, vehicles, which cause climate change like that."

Students' knowledge about climate change is still focused only on weather and climate, even though climate change is broader than that. Then the students were asked whether they agreed that having awareness of climate change included complying with Laudato si. The first student said:

"Agree, because through the encyclical Laudato si, we are invited to love nature, pay attention to the environment around us and by that, we love the environment as God loves us by giving us nature itself."

The second student said:

“Learning about climate change can be said to be a form of obedience for us humans to be more aware of the state of the earth. I think the way we understand climate change is one way we obey that Laudato si.”

The third student said:

“I really agree. What I know is that Laudato si was issued for the environment. If we don't know how to care for the environment so that it remains beautiful, it will ultimately lead to extreme climate change.”

The agreed opinion that having awareness of climate change means obeying Laudato si, is a good starting point for a deeper understanding of climate change. According to what Pope Francis said, humans need to undergo a complete cultural revolution and become aware of the harm that humans cause to the environment (Jati in Kriswibowo et al., 2024). Next, we need to know whether they agree if climate change material is integrated into English language material. More specifically, it was necessary to know what students think if learning English, especially speaking, is integrated with climate change. This was what the first student said:

“For me this can be the right momentum to convey something in a new style. It seems to me that we can convey new information in a new way.”

The second student said:

“I agree about speaking using climate change materials. It just needs to be considered how the teacher can animate the language so that students don't get bored.”

The third student said:

“In my opinion, I totally agree. Because when we talk about climate change, we will look for data first, so that's all we learn to know what we are going to say. It's pretty good too. Learn English, as well as learn about nature.”

The answers from the three students explained that they hoped there would be fun speaking activities related to climate change material. They admitted that speaking English is difficult, so with climate change-based English speaking activities, they could practice their speaking skills and also increase their knowledge about climate change.

3.2 The students' needs viewed by the English teacher

Interviews with English teacher were conducted to find out students' needs in English learning from the English teacher's perspective. In this interview, he explained that the English material taught to students focused on students' interest in English and the courage to speak English. As expressed by the teacher:

“Especially for Rhetorica class (4th grade), the need to love English is important, and the courage to speak needs to be improved. This is done to prepare them to interact in the community.”

Given this need, the teacher focuses on the speaking aspect and the introduction of international English tests. The teacher explains the speaking activities that are usually carried out as follows:

“Related to seminary life, English day runs optimally from morning to evening. In addition, there is the practice of English mass and prayers. They are also involved in singing contests or story-telling.”

The speaking activities carried out by the students looked varied. However, when it comes to material about climate change, there has been no speaking activity that specifically discusses this material. This was expressed by the teacher:

“We use books that discuss environmental concerns in general, but are not specific about climate and ecosystems.”

English language material is needed to be combined with climate change material. In general, UNESCO (2010) has developed general modules include a conceptual framework, a dictionary of natural catastrophe vocabulary, a training manual with lessons, exercises, and assignments, and

resources such as case studies and worksheets. However, there is no climate change development material specifically for the speaking aspect. There have been several studies that have developed reading materials such as report text, descriptive text, virtual drama scripts, and audio-visual materials (Tenridinanti et al., 2021; Tasyaa et al., 2023; Putri et al., 2023; & Maskana et al., 2023).

The Rhetorica class focuses on speaking skills, making speaking activities that are integrated with climate change more in-depth. Therefore, climate change-based speaking material is very suitable for application in Rhetorica class because the focus point in English lessons for the 4th grade is the speaking aspect. This is supported by a statement from the teacher:

“There needs to be speaking activities discussing climate change more specifically, for example: daily dialogue related to environmental concerns. They can do more discussions about climate change, or role-play, creating English songs, storytelling and speeches.”

These various speaking activities must be processed well so that they become enjoyable activities for students, especially when discussing climate change. At the end of the interview session, he said that having more practice speaking English by bringing up the topic of climate change would increase students' awareness of the environment for the better. This is in accordance with the *Laudato si* issued by Pope Francis. He agreed that understanding climate change and its impact on the earth means obeying *Laudato si*.

“Of course I agree, because Laudato si was also born because of climate change. Why Laudato si? The context is formation in a seminary, which is part of the church. So documents are not just documents, but there are reflections and forms of action.”

Therefore, from the explanation, English-speaking material which is integrated with climate change material is needed. English language teaching at 4th grade of Saint Paul's Junior Seminary emphasizes the speaking aspect to prepare seminarians for dynamics in society. In line with *Laudato si*, which invites society to care more about life on earth, seminarians are also expected to obey this call. As stated in *Laudato si* encyclical (Francis, 2015), Pope Francis asked people to have dialogue and discussion about how human shape the future of earth. People need conversations that include everyone, because the environmental challenges that occur are of concern to everyone.

From the results of the questionnaire and interviews, it was found that students recognized climate change material as important material to study. The students realized that climate change is a real issue that has also been called for by Pope Francis so that humans become more aware of its impact on the earth and living things. So, by studying climate change in speaking material, students could gain more knowledge about climate change and improve their speaking skill.

Besides that, through previous research by Putri et al (2023), it was mentioned that the issue of climate change was also a learning material that is in line with the Pancasila Student Profile in the Independent Curriculum. Integrating the topic of climate change with descriptive text that is in line with students' linguistic skills was also expected to improve students' English skills and understanding of environmental issues (Tasyaa et al., 2023). Climate change was also an important topic for grade 7 junior high school students which can be integrated into audio-visuals media in ELT (Maskana et al., 2023). In line with the results of these studies, students at Saint Paul's Junior Seminary Palembang realized that climate change is a real issue that is important to be integrated into education and the curriculum. Discussing this topic in more depth is hoped to increase students' awareness of the environment and ultimately reduce the impact of climate change on the earth. The integration of a very broad climate change topic is also open to other materials or skills in English language teaching.

4. CONCLUSION

The need to integrate climate change material into students' speaking activities is based on the importance of English communication skills. The topic of climate change was one of the points

highlighted by Pope Francis in his encyclical *Laudato si*. Moreover, Saint Paul's Junior Seminary students are prepared to become priests in the future where they must be ready to be sent to various places. So by having knowledge about climate change, students are expected to be able to carry Pope Francis' message. The issue of climate change is not only a problem in the present, because if there is no awareness from society, it will have an impact on life in the future. A needs analysis is carried out to find out students' needs, desires, lack of study, and even learning style preferences. This information is the first step in moving to develop English language materials. Based on the results of this research needs analysis, having the ability to speak English is considered very important, but students still had difficulty speaking English. There is a need to integrate climate change material into English speaking activities because students still lack knowledge of climate change material and students' inability to speak English in accordance with material about climate change. There were no English-speaking materials that specifically discuss climate change. Therefore, students need learning resources that provide English-speaking materials to discuss climate change. It is suggested that further material be developed by exploring other aspects or skills besides speaking so that students' knowledge about climate change becomes deeper and their awareness of climate change also increase. The future of life on earth is in the hands of young people, so awareness and knowledge about climate change and the environment must be increasingly instilled.

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