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Empowering Educators for a Sustainable Future: Exploring Climate Change Perspectives Among Pre-Service Teacher

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Abstract

Climate change is getting worse every day, in line with massive human activity. Ignorance of this problem makes many people ignore it even more, so concrete steps are needed to increase the world community's awareness of this problem. The role of universities in filling this gap in such ignorance is very important. Apart from that, the United Nation invites all governments to start empowering green lifestyles in every sector of life, including the education system. The United Nation recommends implementing a green curriculum to support a sustainable future. For this reason, this study aims to look at the views of pre-service teachers at Universitas Sriwijaya regarding climate change and look for data that will later be used as a reference in designing a green campus curriculum. This study uses mixed methods to obtain diverse data, where the data collected is not only in the form of numbers but also stories obtained through interviews. And the results show that the knowledge of pre-service teachers is still lacking and limited to general information. Apart from that, a lot of data was obtained that can be used for planning a green curriculum later.

Keywords: *Climate Change; Green Curriculum; Pre-service Teacher; Sustainable; Education*

Introduction

Climate change is a phenomenon happening as a sign that our earth is not doing well. In the last few decades, human activities including population growth, economic growth, technological

developments, and changes in behavior are believed to be factors that accelerate climate change (Evseeva et al., 2021; Sreenivas, 2022; Beniston, 2010). This problem continues to grow more complex, affecting many sectors of the society ranging from ecology, economics, social, to education (Abbass et al., 2022). Seeing the uncontrolled growth of the problem, the United Nation initiated the creation of the Intergovernmental Panel on Climate Change (IPCC) as a platform to increase public awareness regarding the magnitude of this problem for future generation (IPCC, 2015).

A global problem should be everyone's problem. The fact is, however, in several previous studies (Liwan et al., 2022; Hyeonjung et al., 2020); Defra & Demski, 2021; Khatibi et al., 2021) it was discovered that the level of awareness of the world community regarding climate change and other environmental problems is still relatively low. This is because climate change does not directly have a real impact on society, so it is often ignored (Norgaard, 2006). Another factor is the public's lack of knowledge about this problem, which results in them neglecting their responsibilities as world citizens who must take part in protecting the world (Ajaps & McLellan, 2015). Seeing this problem, the United Nation through UNESCO issued a campaign namely Educational for Sustainable Development (ESD) as a form of prevention for a sustainable future (UNESCO, 2014).

The opportunity to get quality education for everyone is one of the goals in the 17 goals in sustainable development (UNESCO, 2015b). In order to achieve this goal, the concept of Education for Sustainable Development (ESD) was called for to all members of the United Nation. The goal of ESD itself is to ensure that all students gain the knowledge and skills they need to support sustainable development (UNESCO, 2017). In simpler terms, ESD is a concept of lifelong learning which includes providing the knowledge, abilities and values that society needs to achieve a sustainable society (Choi, 2019).

Sustainable society is a term to describe the condition of a society that has actively used a green lifestyle in every sector of its life (Siddiqui, 2018). To achieve this condition, the United Nation together with the Paris Agreement, and the associated Action for Climate Empowerment (ACE) invite all forms of government to strengthen public knowledge (especially the younger generation) about climate change and other problems. (UNESCO, 2023). Many countries, including developing and developed countries, have adopted and integrated environmental issues such as climate change into their educational curricula in an effort to increase the knowledge of the younger generation. Countries such as America, England, Canada, Ireland and Singapore have succeeded in integrating climate change issues in their national curricula (Eilam, 2023).

Indonesia, as part of the United Nation and a country with the 4th largest population in the world, also feels the threat from this problem. Therefore, the current national education curriculum (namely the *Kurikulum Merdeka* or Independent Curriculum) has a concept that refers to the green curriculum and ESD, but has not explicitly mentioned it (Kemendikbudristek, 2022). This fact is a good start, because internationally, based on UNESCO data, 47% of curricula from 100 countries do not even refer to environmental problems such as climate change and other problems.

Changing educational orientation is a big step that needs following by further steps. However, a curriculum will not be able to function according to its objectives if the people who use it do not understand its objectives (Nevenglosky et al., 2019). This is evident from UNESCO data which states that 40% of teachers are confident to teach about climate change, but only 20% of them can explain and provide a picture of real action (UNESCO, 2023b). Therefore, change also needs to start from a teacher, even from when they are still a pre-service teacher at a university.

Prospective teachers are those currently studying to become professional teachers at an educational institution such as a university. Universities play an important role in filling the gap in society's knowledge regarding global problems such as climate change (Lim et al., 2022). Basically,

empowering pre-service teachers at universities is the most appropriate approach to become a preventive solution to global problems (Louw, 2013).

Universitas Sriwijaya in Indonesia, as a university that produces pre-service teachers, has a high commitment to becoming a government stakeholder in resolving this problem. For this reason, Universitas Sriwijaya feels it is necessary to integrate environmental problems such as climate change and create a curriculum that is oriented towards ESD. By applying and empowering the green curriculum to pre-service educators, a professional teacher will be created who can explain, apply and give real examples to reduce the impact of climate change and other environmental problems.

The first step to integrate or create a new curriculum with an ESD orientation is to analyze the knowledge, needs and hopes of said pre-service teachers at the Faculty of Teacher Training and Education in the campus. This study is aimed at looking deeper into this problem by carrying out needs analysis/assessment in order to obtain data that suits the needs and hopes of these pre-service teachers.

Through this study, it is hoped that comprehensive data will be obtained regarding the views of pre-service teachers around what if environmental problems such as climate change were integrated into the curriculum, whether it is needed, and what learning model will suit it best. This approach will make it easier for universities to design curricula that suit the needs and hopes of pre-service teachers and are useful for achieving a sustainable future.

Method

Research Design

In line with the research objectives, various approaches will be carried out to obtain comprehensive data regarding pre-service teachers' views on global problems such as climate change. Therefore, this study will use mixed research methods. The procedure in this method integrates qualitative and quantitative methods in one study (Fàbregues et al., 2020). This method was chosen for several reasons: 1) this method is often used in needs assessment research such as a study from Ahmmed et al. (2020); 2) a combination of qualitative and quantitative data will provide more comprehensive data, because by using 2 different approaches the weaknesses in 1 approach can be covered by the other (Frias & Popovich, 2020); 3) mixed methods provide flexibility in implementation procedures so that the data obtained is diverse and very suitable for examining social problems such as climate change (Hou, 2021).

Participant

This research will be conducted at the Faculty of Teacher Training and Education, Universitas Sririwjaya, Indonesia. The sample in this research consisted of 2007 people from 15 different study programs. In Table 1 we can see the distribution of respondents who filled in the questionnaires and their study programs.

Table 1. Respondents' Spread in Their Respective Study Programs

No	Department/Study Program	Number or Participating Respondent	Estimated Number of Active Students (2020,2021,2022)	
A. Language Education				
1	Bahasa Indonesia	46	250	18%
2	English	41	250	16.40%
B. Social Education				
3	History	85	250	34.00%
4	Economy	256	250	102.40%
5	Civic Education	80	250	32.00%
C. Science Education				
6	Math	80	250	32.00%
7	Chemistry	59	250	23.60%
8	Biology	307	250	122.80%
9	Physics	37	250	14.80%
D. Educational Studies				
10	Elementary School Teacher Education	187	250	74.80%
11	Counselling Teacher Education	276	250	110.40%
12	Preschool Teacher Education	196	250	78.40%
13	Society Education	5	250	2.00%
14	Physical Education	103	250	41.20%
15	Mechanical Engineering Education	249	250	99.60%
	Total	**2007**	**3750**	**53.52%**

Primary Data Processing

Based on the data in Table 1, it can be seen that the number of respondents who filled out the questionnaire was estimated to be 53% of all pre-service teachers at the Faculty of Teacher Training and Education, Universitas Sririwjaya. The majority of these respondents came from the education department because this department has the largest number of study programs. With this number of respondents, it is hoped that a variety of more representative data will be obtained.

Data Collection

The data collection process will be carried out through questionnaires and semi-structured interviews. The use of questionnaires can provide information about what the respondents want, need, think, know and feel (Taylor-powell, 1998). The questions created in this study will be adjusted to the goal to be achieved, namely finding out how pre-service teachers view environmental issues such as climate change. These questions will focus on 4 main aspects, namely knowledge analysis, need analysis, current situation analysis, and desire target analysis (Taherdoost, 2022).

Results and Discussion

Results

This stage presents and discusses the findings regarding the need assessment of pre-service teachers and their views on climate change as a global problem. Data will be displayed sequentially as explained in the method section.

Knowledge Analysis

The first analysis that to be carried out is the pre-service teacher's knowledge of the issue of climate change. Figure 1 shows their responses when given the choice (inadequate, adequate, good, very good) regarding how much they understand climate change material.

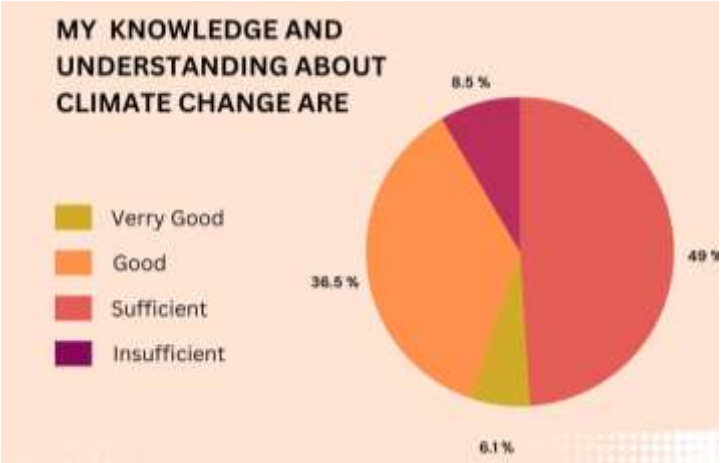

Figure 1. Pre-service Teachers' Knowledge and Understanding about Climate Change Issue

Figure 1 shows that the majority of respondents (49% or 983 respondents) said that their knowledge was only adequate. Meanwhile, another majority (36.5% or 732 Respondents) answered good, and almost 6% (120 respondents) were quite sure they really understood the issue of climate change. Unfortunately, there are still quite a lot (8.5% or 170 respondents) of pre-service teachers whose knowledge about climate change is inadequate. This result is related to the next question in Figure 2 which will show more clearly the level of knowledge of these pre-service teachers.

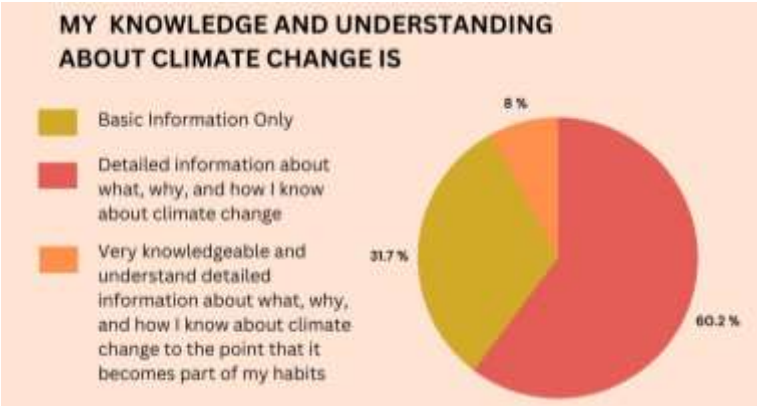

Figure 2. Pre-service Teachers' Depth of Knowledge Regarding Climate Change Issues

Figure 2 shows that the majority of the pre-service teachers (60.2% or 1,208 respondents) only have basic knowledge about climate change; 31.7% (636 respondents) have sufficient knowledge of what, why and how climate change can affect the world; and another small portion (8% or 160 respondents), have knowledge that has even entered the application stage for prevention until it becomes a habit. These results are in line with several previous studies (Yli-Panula et al., 2022) (Monroe et al., 2013) (Lombardi & Sinatra, 2013) which show that teachers' and pre-service teachers' knowledge regarding climate change issues is incomplete, only partial or only general information, so they cannot properly implement it in learning. Clearly this is interesting, for which reason the researchers again asked the respondents referred to in Figure 3 about what sources of information they used to find information about climate change.

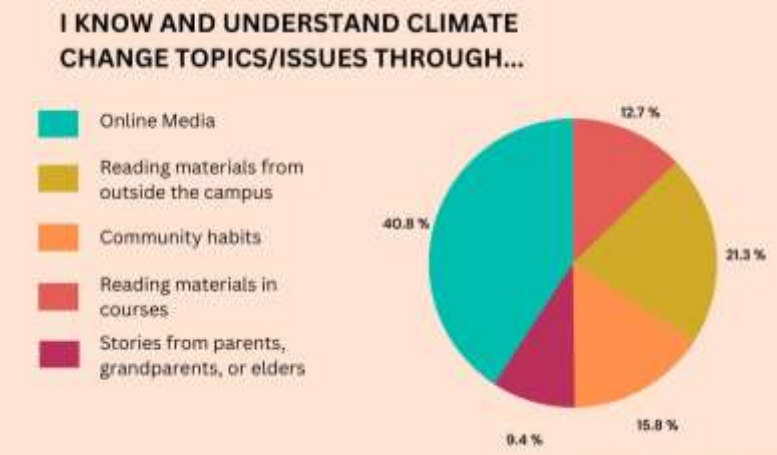

Figure 3. Sources of Information Regarding Climate Change Issues

Figure 3 shows that the most frequently used information source is online media with a total of 40.8% respondents (827 respondents). Other sources that respondents used were listening to news from the community around 15.8% (317 respondents), hearing news through family (9.4% or 188 respondents), reading material from outside campus (21.3% or 421 respondents) and reading material from campus learning (12.7% or 254 respondents). These results answer why the majority of respondents only have general knowledge about climate change, mainly because the source of information they use is online media. Online media is indeed the best option for disseminating information, but too much information makes users often lose focus, so the information they collect is only from news that appears on social media. Apart from that, the majority of respondents also answered that they rarely really want to look for information about climate change; they instead only see the news accidentally, which explains why they only have general information about global problems such as climate change.

It can be concluded that the knowledge of said pre-service teachers at the Faculty of Teacher Training and Education, Universitas Sriwijaya regarding the issue of climate change is still relatively limited, so they cannot integrate the issue of climate change in their respective knowledge groups. This is because to be able to integrate a problem to the teaching process, a teacher must truly understand said problem. The question now is whether these teacher candidates have the same vision as the campus regarding education that is oriented towards climate change learning. This will be discussed in the next analysis, namely the needs analysis aspect.

Needs Analysis

The needs analysis stage shows the views of pre-service teachers whether they have the same vision as the campus, the same problems, and the same awareness. By knowing these things, we can then go further, such as designing a proper curriculum. The answers to these questions are presented in Figure

4 which contains the views of pre-service teachers regarding the question of whether the topic of climate change is needed within the Faculty of Teacher Training and Education, Universitas Sriwijaya.

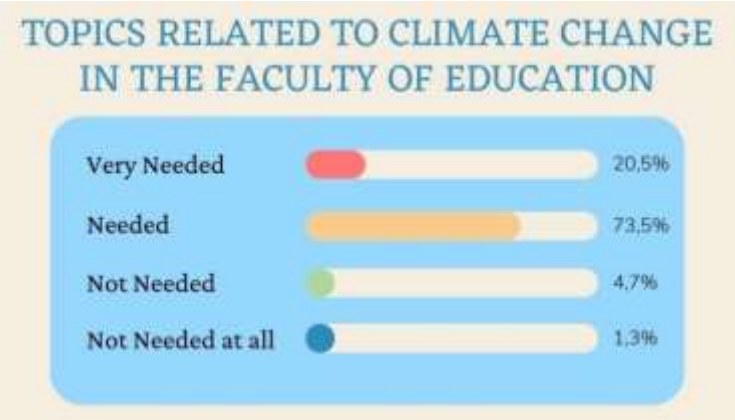

Figure 4. Pre-service Teachers' Concerns About Climate Change in Faculty Environment

Figure 4 shows that the majority of teacher candidates (73.5% or 1,475 respondents) answered that it was needed and 20.5% (411 respondents) answered that this topic was very necessary for the professional teacher candidate environment. However, there is a small number of pre-service teachers who have a different view. 4.7% (94 respondents) answered that this topic was not needed, and 1.3% (26 respondents) answered that this topic was really not needed. The majority of those who disagreed argued that they did not see continuity between their study program and the problem of climate change. Apart from that, they also did not understand how to integrate this issue/topic in learning. We think that this reason is a form of their ignorance of the topic, and their unwillingness to continue to deepen it, because in Figure 5 we can see what they will get when they continue to learn about this topic.

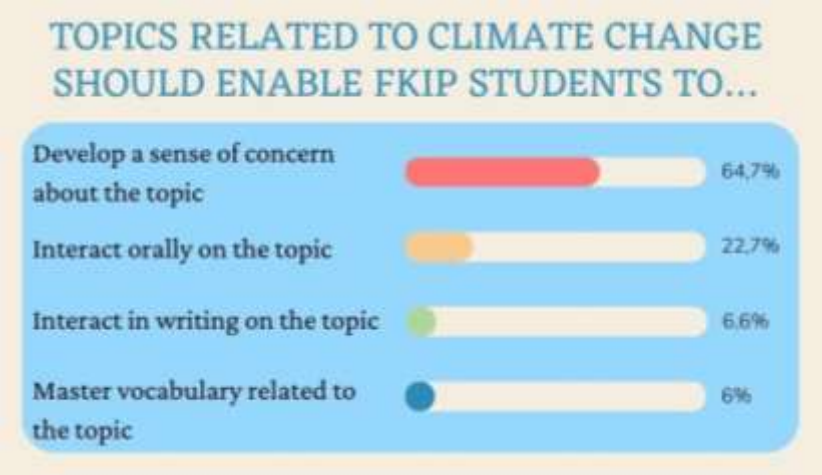

Figure 5. Pre-service Teachers' Opinion About Practicing Climate Change Topic for Education

Figure 5 shows that these pre-service teachers feel that if this topic is raised more often in the faculty environment, it will be able to make them not only talk about it verbally (22.7% or 455 respondents) but also wrote seriously about it (6% or 120 respondents). This will increase their mastery of the topic of climate change (6.6% or 132 respondents) and ultimately enable them to develop a sense of awareness of this issue, which will later have implications for the way they teach in class. This fact is really interesting, for which reason our team asked the question in Figure 6 again whether they agreed if the topic of climate change was not only discussed indirectly but also included in the learning curriculum.

Figure 6. Pre-service Teachers' Willingness If There Is a Change in Learning Orientation

Figure 6 shows that the majority of pre-service teachers agree that learning on campus is starting to be oriented towards learning about climate change. More precisely, 78.2% (1569 respondents) and 8.3% (166 respondents) of them answered that they agreed if changes in learning orientation were made. Even though the majority said they agreed, the number of those who disagreed increased compared to before, namely 12.5% (250 respondents)—an increase of more than 100% from the previous statement. So, it was concluded that from the 73.5% who answered that the topic of climate change was needed, there were 6.5% who felt that this topic was only needed to support the academic atmosphere, but there was no need to make this issue the center of learning. To look further at the results shown, an analysis of the learning situation was carried out in the Faculty of Teacher Training and Education regarding the issue of climate change in learning.

Current Situation Analysis

To understand a problem, it is necessary to analyze said problem from within. Analysis at this stage will focus on how the learning atmosphere is felt by pre-service teachers now. Figure 7 shows how often pre-service teachers receive learning related to climate change.

Figure 7. Pre-service Teachers' Frequency in Receiving Learning Related to Climate Change

Figure 7 shows that pre-service teachers do not get enough learning about climate change during their lessons. It can be seen that the majority of them (37.4% or 750 respondents) answered rarely and 23.9% (479 respondents) answered seldom. This result was predicted considering that in the formulation of the curriculum and other teaching instruments the topic of climate change had not been discussed clearly. However, seeing that there are pre-service teachers who answered sometimes (30.9% or 620 respondents) and often (7.7% or 154 respondents) indicates that lecturers in the FKIP environment are not all ignorant of global issues such as climate change. To test this hypothesis, we continued by asking the

questions shown in Figure 8 which contain questions about how often lecturers provide reading materials or books, accompanied by questions that are still related to the issue of climate change.

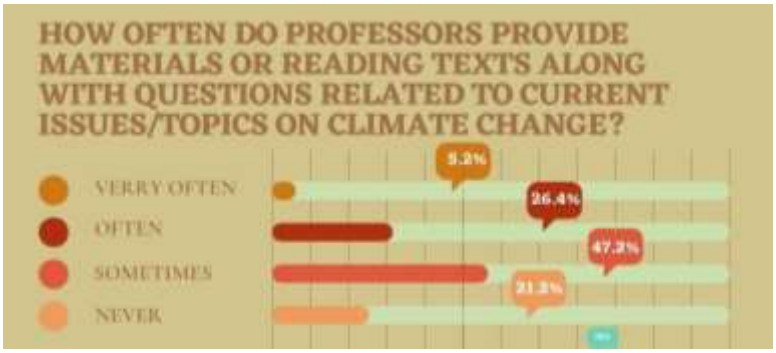

Figure 8. Frequency of Lecturers Providing Reading Materials/Materials Related to Climate Change

Figure 8 shows that the previously obtained hypothesis turns out to be incorrect after looking at Figure 7, because it can be seen from the majority of pre-service teachers (47.2% or 947 respondents) who answered sometimes and 21.2% (425 respondents) answered never, while some others (26.4% or 529 respondents) answered often and 5.2% (104 respondents) answered very often. After further investigation, the learning situation at FKIP Universitas Sriwijaya is not yet fully oriented towards environmental issues such as climate change because only a few are more concerned about this problem. In simple terms, based on the existing answers, lecturers from natural science departments more often integrate this issue/topic compared to other departments, so that the majority of pre-service teachers still answer that they did not get enough material/reading books regarding climate change issues. After seeing the current situation regarding the learning process in the FKIP environment, a personal approach will then be taken to analyze what pre-service teachers' hopes and views are regarding the issue of climate change.

Desires/Hopes Analysis

In line with the previous analysis, it was found that these pre-service teachers had not received enough materials, reading activities or direct learning related to climate change issues. So, in this analysis we will analyze what kind of learning model they want regarding climate change material. Before that, Figure 9 asks what kind of reading pre-service teachers like.

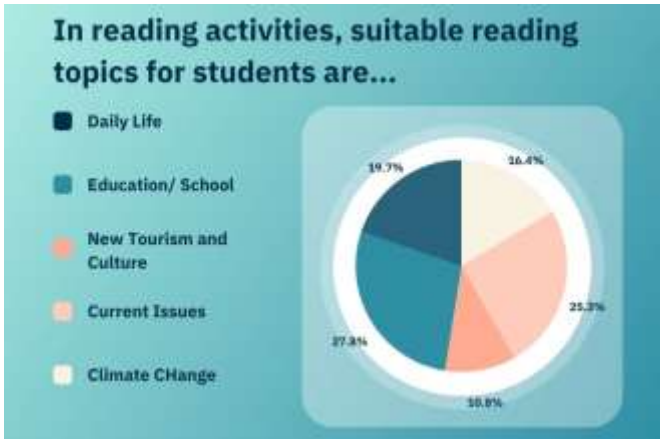

Figure 9. Suitable Topic for Pre-service Teacher

Figure 9 shows that the issue of climate change does not receive enough attention from pre-service teachers, namely only 16.6% (333 respondents) do pay attention. The majority (27.7% or 555 respondents) chose education/school material and 25.2% (505 respondents) of them preferred reading

about current issues. Apart from that, there were 10.8% (216 respondents) who chose the new tourism/culture topic and 19.7% (395 respondents) chose everyday topics. The results are a picture of today's world society who does not have high awareness of global issues such as climate change. Returning to the previous question, what kind of learning model do pre-service teachers want regarding climate change material, in Figure 10 it was found what type of reading material they want.

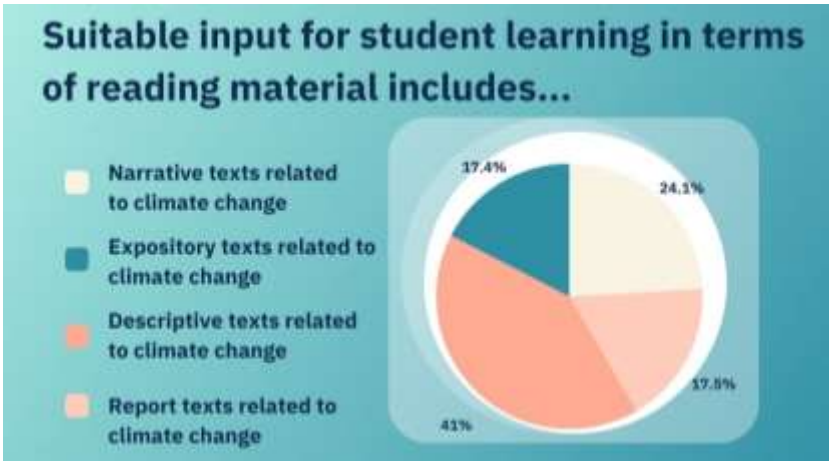

Figure 10. Pre-Service Teachers' Favorite Type of Reading Materials

Figure 10 shows that the majority of pre-service teachers (41% or 822 respondents) chose descriptive reading types. There were also those who chose narrative reading as much as 24.1% (483 respondents). Apart from that, 17.5% (351 respondents) chose the exposition type and 17.4% (349 respondents) chose report text as their favorite reading material. Based on these results, we then asked more deeply, and it was discovered that descriptive text was chosen because it was easier to understand the content than other types.

One of the abilities that a student must have and develop today is literacy and critical thinking skills. Through this ability, a student will be able to understand the content of what they read and speed up the process of strengthening knowledge. Figure 11 shows pre-service teachers' views regarding the most appropriate assessment methods for assessing these two abilities.

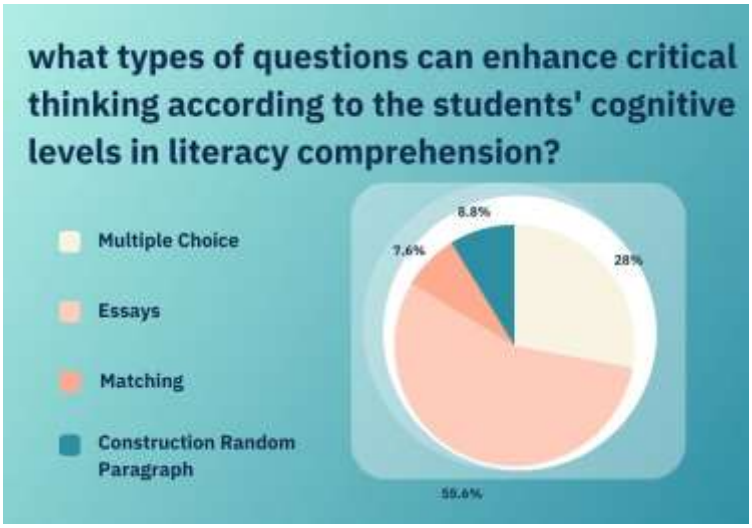

Figure 11. Types of Assessment that are Suitable for Literacy and Critical Thinking Abilities

Figure 11 shows that essays are the most appropriate method for assessing literacy and critical thinking skills with the number of pre-service teachers choosing it as many as 55.7% (1,117 respondents). Apart from it, the multiple-choice method also received quite a lot of votes (28% or 561 respondents). There was also a small portion of pre-service teachers who chose matching (7.6% or 152 respondents) and constructing random paragraphs (8.8% or 176 respondents). This result is not surprising because essays are the method most often used when assessing a student's literacy or critical thinking abilities. Next, questions will be asked regarding the integration of climate change issues into learning. Figure 12 shows the views of pre-service teachers if a special course is created in each study program for climate change issues.

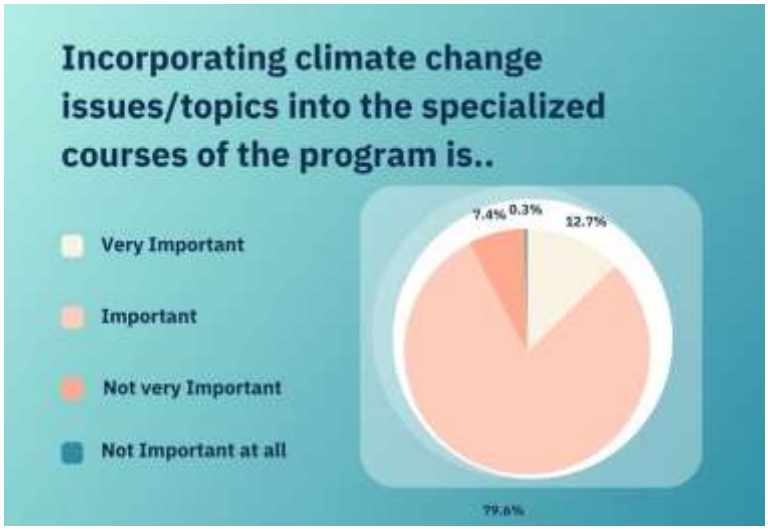

Figure 12. Pre-service Teachers' Views Regarding How Important Incorporating Climate Change Topic is

Figure 12 shows that the majority of pre-service teachers (79.6% or 1,597 respondents) answered that it was important to make decisions regarding the topic of climate change. More than that, there were 12.7% (254 respondents) who answered that this was very important to do, but there were also those who answered that it was not important (7.4% or 148 respondents) and also very unimportant (0.3% or 6 respondents). When explored further, the reason pre-service teachers answered that it was not important was because their awareness was still low regarding this issue/topic and they felt that their knowledge area was not really related to the issue of climate change. Seeing this, we again asked in Figure 13 about their views regarding what they would gain when studying climate change issues in one particular case.

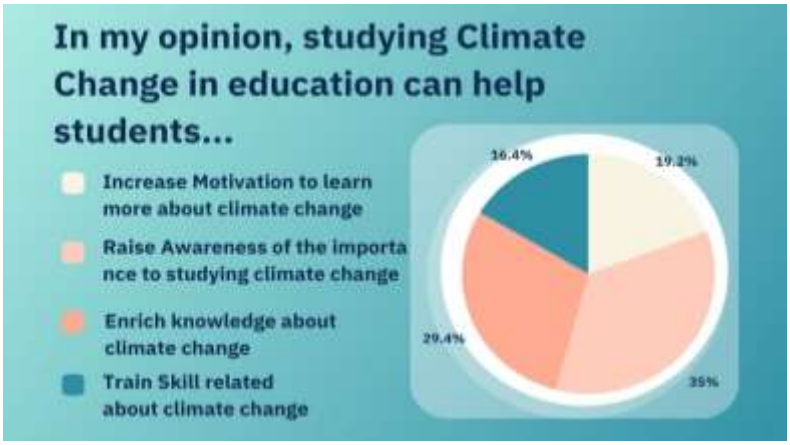

Figure 13. Benefits of Studying Climate Change Issues

Figure 13 shows that 35% (702 respondents) of pre-service teachers agree that this course will be able to increase their awareness of the seriousness of this problem. Another 29.4% (590 respondents) of pre-service teachers thought that this course would enrich their knowledge of climate change issues. There were also those who thought (19.2% or 385 respondents) that this course would increase their interest in studying climate change. Apart from that, there are pre-service teachers who believe that through special courses they will gain skills related to climate change. All of these opinions certainly have a positive impact so it is considered necessary to create a special course regarding climate change. Therefore, we again asked in Figure 14 which aspects of climate change they would like to study further.

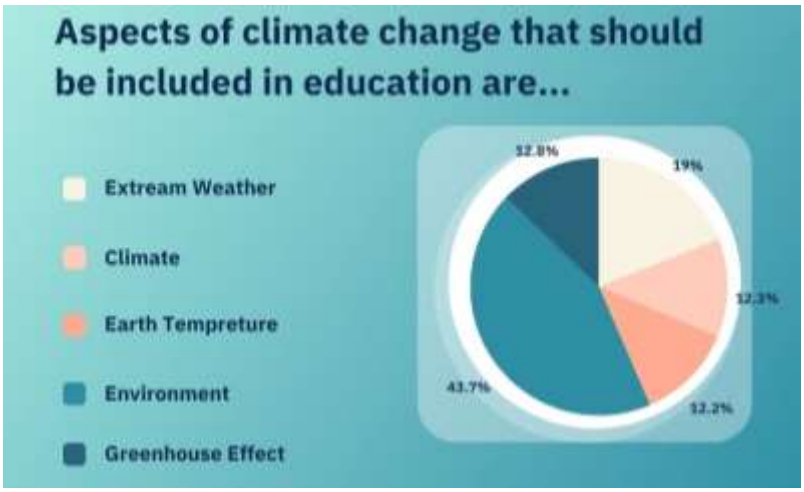

Figure 14. Issues That Need to Be Studied Further

Figure 14 shows that the majority of pre-service teachers (43.7% or 377 respondents) chose environmental issues. Apart from that, there are also other issues such as extreme weather issues (19% or 281 respondents), climate issues (12.3% or 246 respondents), earthly issues—floods, rising sea water, temperature etc. (12.2% or 244 respondents), greenhouse effect (12.8 % or 256 respondents). The issues presented are current issues that have a big impact on the future, and each issue is important to study further.

Discussion

This study aims to examine the views of pre-service teachers regarding the topic of climate change within the Faculty of Teacher Training and Education. The data obtained through this study will become a basic reference in designing a teaching curriculum oriented towards climate change. In the process there are 4 aspects that were analyzed: knowledge, needs, current situation and hopes (of the target audience).

In the first analysis stage, namely knowledge analysis, a hypothesis was made that pre-service teachers who have wider access to information should more or less have adequate knowledge regarding the matter. However, based on the survey results, it was discovered that pre-service teachers at the Faculty of Teacher Training and Education, Universitas Sriwijaya do not have sufficient understanding of the topic of climate change. This result is still in line with the data provided by UNESCO (UNESCO, 2023b). Our research team thinks that their low knowledge is due to their lack of awareness of this problem themselves, because the majority of them get information through online media. Online media should have a lot of literature on this issue, but their knowledge is still limited to general information. In fact, most of them said that they looked for information about climate change only if there was a task related to it. The rest, meanwhile, only read short news that they find on their social media homepage.

The low level of pre-service teacher awareness is caused by psychological distance (PD). This condition makes us move only based on the extent to which a phenomenon, object or person will influence us (Kundrát & Rojková, 2021). Therefore, the problem of climate change must be present more closely, real, local and relevant to the community, especially pre-service teachers, so that it is hoped that their awareness will increase (Spence et al., 2012). This fact makes us aware that online media is indeed the best media for disseminating information to the wider community. However, if the problem is not seen as urgent, the level of awareness will not change. For this reason, our team believes that bringing this problem into the campus world with its academic culture such as learning forums, communities and integrating it into the curriculum is the first approach that must be taken to make sustaibale society, especially students, feel the threat of climate change so as to increase their awareness, which will then have implications for their future attitudes (Rahman, 2018; Anyanwu & Njoku, 2023; Luthfia & Alkhajar, 2018).

The Faculty of Teacher Training and Education, Universitas Sriwijaya as an educational institution that produces pre-service teachers, has a great interest in designing learning that is oriented towards climate change. The question now is whether the students have the same vision as the campus. For this reason, through this study, we carried out a second analysis, namely needs analysis, where their views can be seen if the educational process will begin to be directed towards sustainable education by discussing global issues such as climate change.

Based on the survey conducted, the majority of pre-service teachers agreed that global issues such as climate change are very necessary in the faculty environment. Apart from increasing the awareness of pre-service teachers, this can also be a momentum to increase their knowledge through communities or discussion forums which have become a culture in the campus environment (Shen & Tian, 2012). Basically, a good learning environment will influence the output that will be produced (Kurniawan et al., 2018). Apart from that, based on the survey, it was also discovered that the majority of pre-service teachers also agree that the learning process in the classroom is starting to be directed towards global issues such as climate change. The majority of them think that if this issue is present in classroom learning, they will be able to study the problem of climate change based on their respective fields of knowledge. Furthermore, it is necessary to see what the existing learning conditions are, whether the issue/topic regarding climate change has been presented in learning by the lecturer or not.

Based on the survey results, it was discovered that pre-service teachers still have very little information regarding the issue of climate change, either in classroom learning or through discussion forums and organizations. Filho et al. (2021) explain that higher education plays an important role in preventing and reducing the impacts of climate change. For this reason, the Faculty of Teacher Training and Education at Universitas Sriwijaya has started to direct its curriculum towards sustainable education and focuses on environmental issues such as climate change. Components in the curriculum itself include objectives, materials, learning strategies, and assessment instruments (Zohrabi, 2008). Afterwards, an analysis was carried out regarding the hopes of said pre-service teachers regarding materials, strategies and assessment instruments that were deemed suitable in a curriculum that was oriented towards climate change.

Strengthening knowledge will always be related to increasing literacy skills (Didiharyono & Qur'ani, 2019) and literacy will always be related to reading activities to gather information to solve a problem (Pilgrim & Martinez, 1974). For this reason, respondents were again faced with questions about what topics needed to be explored more deeply regarding the issue of climate change. In Figure 9, it can be seen that pre-service teachers have different concerns because the answers given are very diverse with almost the same number of respondents. If we return to Spance's (2012) statement where one way to increase awareness is by presenting problems closer and more realistic, it could be said that linking the problems occurring around us to climate change is the right choice as material in making teaching materials.

Based on the survey results, it was discovered that pre-service teachers prefer descriptive reading material. The reason why the majority of them chose this type of writing is because they feel this type of writing is the easiest type of writing to understand. Descriptive text will describe a problem objectively because the data presented is based on clear research (Jayanti & Rozimela, 2022) unlike narrative text which mostly adopts the author's opinion in its creation. Additionally, Anderson & Anderson also explained that descriptive text will explain a problem sequentially without jumping directly to conclusions (Humarani et al., 2023), so that the knowledge gained is complete knowledge and is expected to increase pre-service teachers' awareness and knowledge of the urgency of this problem.

One of the keys in curriculum design is the assessment instrument. In this study, based on the survey conducted, the pre-service teachers agreed to use the essay method. This method will be able to provide teachers with information about a person's knowledge and attitudes when answering questions (Bennion et al., 2020). Apart from that, this method can also see the depth of students' understanding of the material that has been presented so that the growth/development of knowledge can be seen more clearly (Kellog, 2008).

Conclusion

Based on the results shown, it can be concluded that pre-service teachers' awareness of environmental problems such as climate change is still lacking. This issue/topic does not attract much attention, so students and pre-service teachers' alike rarely hold discussion forums that discuss this issue. Apart from that, lecturers who do not try to link their learning to this issue also play a role in the low knowledge and awareness of said pre-service teachers regarding climate change. After conducting a survey and observing these pre-service teachers, our team believes that currently they only need a little trigger to start becoming aware of this problem, especially since Universitas Sriwijaya, as of the date of this writing, is experiencing a haze disaster due to a prolonged drought. This means that this moment can be a trigger to present scientific discussions regarding this environmental problem.

Overall, in this study the respondent pre-service teachers agreed to support the campus' teaching and education faculty in developing a new curriculum oriented towards sustainable education. It is hoped that the data obtained in this study will contribute information to the dean in the curriculum design process so that a suitable and effective curriculum will be created for pre-service teachers at Universitas Sriwijaya.

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