

# Climate Change Exposition Reading Materials for Senior High School Textbook: Students' Needs Analysis

*By hartono hartono*

## Climate Change Exposition Reading Materials for Senior High School Textbook: Students' Needs Analysis

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### ABSTRACT

This research aims to find out the Senior High School students' needs in English reading materials development based on climate change material reviewed by students', and teachers' views. The data are obtained through the use of a questionnaire and semi-structured interviews. The data is analyzed both quantitatively and qualitatively. The results of the need analysis show that: 1) English is essential to students' future careers, (2) students' English proficiency is in the beginner level, 3) students still have some difficulties in writing skill, 4) the kind of text needed is an exposition text, 5) there is a need of integrating English reading materials with the materials of the content subjects, 6) students still lack knowledge about climate change material, 7) there is limited existing English reading materials which are integrated with climate change, 8) two main reasons for integrating climate change material into educational materials are to enhance the knowledge of students. Due to the needs, it is necessary to develop supplementary exposition reading materials by integrating climate change which matched the students' English proficiency and could support their study program.

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## 1. INTRODUCTION

Research by Organisation for Economic Co-operation and Development (OECD) (Witoelar, R, 2020) presents to Climate Change Education by raising awareness and promoting knowledge and skills development, education is an essential component and a catalyst for responding to global climate change. Its importance has been increasingly highlighted at the international level.

In expansion, the changing climate is caused by global warming and affects the weather including changes in rainfall and temperature patterns causing floods and dry spells; heat waves that cause impacts such as fire and extreme drought; social impacts through affects on livelihoods and increased

incidence of disease; and economic impacts such as the decline of productivity and infrastructure damage. Every country and living organisms on the earth suffer from these conditions.

The geographic locations and social economic conditions of developing countries are already vulnerable to several disturbances such as floods, landslides, tsunami, drought, and forest fire. Moreover, most of these countries have limited resources and capacity to respond the natural disasters and the impacts of climate change. In principle, adaptation program should be in line with the programs to achieve sustainable development.

It affects all components of the education system – which include, among others, legislation, policy, finance, curricula, teacher education, instruction, learning, assessment, school governance, and infrastructure – and considers learning as a lifelong process taking place in various settings. In this network, Climate Change Education (CCE) (The United Nations Educational, 2022) fosters an understanding of the complexities and interconnection of the various challenges posed by climate change. More specifically, CCE promotes learning about the causes and effects of climate change as well as possible responses, providing a cross-curricular and multidisciplinary perspective. To promote the climate change education, it is crucial to strengthen teachers' and educators' capacities to deliver accurate information and integrate local content. This includes increasing their understanding of climate and sustainability issues as well as helping them develop necessary skills and providing them with pedagogical support. Furthermore, teachers and educators need dedicated materials to support their learning activities on climate change. Examples of relevant materials include manuals, teachers' resource guides, lesson models and training modules, but also books, cartoons and videos (to name a few) guide, inspire and empower students.

The teaching of English includes the four language skills of listening, speaking, reading, and writing. In addition, literacy on reading skills is one of the skills that need to be considered as well as emphasized. Students can gain more information to explain their skills, such as being a guide, by reading. Accordingly, teachers face many difficulties in promoting student competence and encouraging them to read because of a shortage of opportunities that meet their needs and interests. As a result, students must have access to reading materials relevant to their subjects and interests. If the content does not meet the students' standards, the instructor will have to create new material (Elviana, 2020; Mahbub, 2018; Mukundan, 2016). Teachers must be able to design, modify, and adapt teaching materials based on teaching and learning objectives and student characteristics, as set out in National Education Regulation No. 16 of 2017 (Government Regulation of Indonesia., 2017), relating to teachers' professional competence. The materials taught in SMA should be designed or developed appropriately to fulfil the students' needs. Providing materials for reading in teaching English in SMA can be integrated with the knowledge of the content subjects. The knowledge taught in English is about science, technology, art, culture, and humanities, which is consistent with the core competence of the English subject of the 2013 curriculum.

Experts discuss the need for students to learn English more directly in their fields, which leads them to develop English teaching materials for senior high school students. Other countries have also undertaken a variety of needs recognition studies (Bedoya, 2015; Chetsadanuwat, 2018). These findings highlight the value of performing a needs review while developing standards, textbooks, or instructional materials. The needs analysis may explain students' challenges, the expertise or skills required, or the teaching strategies to be used— besides, the findings of the study of needs. The study will be the most relevant thing to consider to fulfill the needs of students. Other items or tools can be adapted or altered to be used in the development of materials (Tomlinson, 2012). By reducing, adding, replacing, modifying, and adding to the importance of the book for each student, curriculum adaptation improves the content to enhance or make it more suitable for certain types of learners.

The first and important thing to do before developing the materials is to do need analysis (Susanti, et al., 2017; Sopian, et al., 2019; Septiana, 2020; Inderawati, et al., 2021; Octaviana, et al., 2021; Rrahima, et al., 2021; Checacia, et al., 2021). According to (Brown, 2009) need analysis means the process of gathering information about the needs of a certain group in industry or education. It means that, at

SMA, it is the activity of gaining information about the students' needs in learning based on their study program. Furthermore, (Brown, 2009) describes nine types of language need analysis. They are (a) target situation analysis (TSA), which deals with the information on the language requirements that learners must meet when learning a language. It focuses on the students' purpose or necessities in learning language, (b) deficiency analysis which considers the students' current wants and needs and their target situations deficiencies or lacks, (c) present situation analysis (PSA) which focus on the existing proficiency, knowledge, strengths and weaknesses of the students, (d) learning-oriented analysis which takes the view that the needs (in terms of syllabus, content, teaching method, materials and others) should be negotiated between students and other stakeholders, (e) strategy analysis which focuses on the students' preference in terms of learning strategies, error correction, group sizes, amount of homework, and others, (f) means analysis which examines the learning environment or situation with as few prejudices as possible such as in terms of utility, organization or cultural appropriateness, (g) language audits which get the view of need analysis in large-scale in terms well-planned language policies, professional fields, governmental service, countries and others, (h) set menu analysis which sets out to create a menu of main courses from which the sponsors or students can select, (i) computer-based analysis which is done by computer to match perceived needs to a data base of the materials.

Some of studies on need analysis also have been conducted in other countries such as (Alsamadani, 2017; Bedoya, 2015; Chetsadanuwat, 2018; Hamlan, 2015; Ibrahim, 2016; Kayaoglu, 2016; Lee, 2016; Wu, 2018). Their investigations show the necessity and unavoidable function of the need analysis in arranging instructions, designing textbooks, or developing teaching materials. The need analysis can identify the problem that the students are facing, the knowledge or skills that are required, or the teaching method that should be used. Furthermore, the result of the need analysis can be the main point that had to be considered in order to meet the needs of the students (Azizah et al., 2021; Herawati, 2020; Octaviana, 2021; Tindianti, 2021).

Furthermore, teachers and educators need dedicated materials to support their learning activities on climate change. Developing climate change based descriptive reading materials can be a way to enlarge their knowledge as well as to encourage their awareness of the existence of climate change, and help them culturally literate. Education for Sustainable Development program, UNESCO has been working to make education a more central and visible part of the international response to climate change. Education is crucial to promote climate action. It helps people understand and address the impacts of the climate crisis, empowering them with the knowledge, skills, values and attitudes needed to act as agents of change.

In addition, the use of climate change-based material is highly recommended by UNESCO, the number of climate change-based materials is still limited in Indonesia, even many schools still lack English textbooks containing climate change material. According to (Tomlinson, 2012) teaching materials are anything that can be used to assist students in their studies. Furthermore, (Maley, 2016) explains that material taught is required to offer more educational perspectives for example critical thinking, life skills, citizenship, global issues, cross-cultural understanding, and more. In the curriculum, materials are considered as one of the important components in the teaching and learning process since materials are the knowledge which the students need to learn. As a result, it is important to integrate climate change into teaching materials. Since there are currently no teaching materials containing climate change content, the development of teaching materials containing climate change content is considered necessary.

Based on the explanations above, the researchers need to conduct the need analysis study related to the students' needs in advance, as the prior stage of developing English exposition reading climate change materials students of SMA. The students' needs analysis conduct included TSA, deficiency analysis, PSA, and strategy analysis. This need analysis focuses into the needs of SMA students, and English teacher. Thus, the goal of this research is to describe the perspectives of students, and teacher on the students' needs in English reading materials as a result of climate change.



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The introduction should briefly place the study in a broad context and highlight why it is important. It should define the purpose of the work and its significance. The current state of the research field should be reviewed carefully, and key publications cited. Please highlight controversial and diverging hypotheses when necessary. Finally, briefly mention the main aim of the work and highlight the principal conclusions. As far as possible, please keep the introduction comprehensible to scientists outside your particular field of research. References should be cited as (Ibrahim, 2016; Rahamdina, 2019; Sopian, 2019); Marchlewska et al., 2019; Cichocka, 2016; Hidayat & Khalika, 2019; Ikhwan, 2019; Madjid, 2002; Miller & Josephs, 2009, p. 12; Rakhmat (1989). See the end of the document for further details on references. Technical terms should be defined. Symbols, abbreviations, and acronyms should be defined the first time they are used. All tables and figures should be cited in numerical order.

## 2. METHODS

This study is a kind of development research which is proposed by Akker (1999). Development research is a research type that aims to design a product for certain purposes. There are three main phases in development research that is proposed by Akker (1999), analysis, design, evaluation and revision. The participants of this study involve eleventh-grade students, 1 English teacher at an SMA Srijaya Negara Palembang. This school has two study programs, they are science and social class. There are 3 science classes and 4 social classes. The study uses purposive sampling as the sampling technique. The sampling is eleventh grade students of science class 1, the total number of the students are 35 students, 13 students are male and the rest, 22 students are female. and 1 English teacher at an SMA Srijaya Negara Palembang.

The data are obtained through a questionnaire and semi-structured interviews. The questionnaire is given to the students and consists of 25 questions. The questions are classified into Target Situation Analysis (TSA), deficiency analysis, Present Situation Analysis (PSA), and strategy analysis. The interview is conducted to one English teacher especially related to teaching English in SMA, the existing English reading materials, and the use of climate change in developing English reading materials.

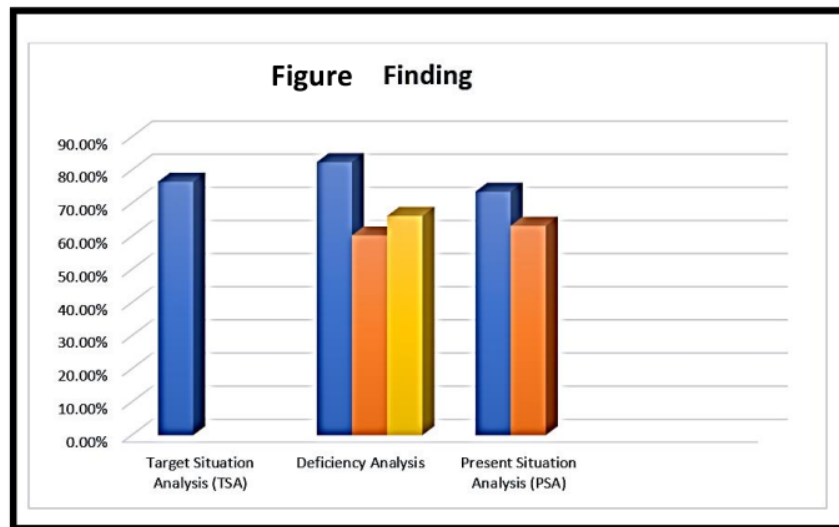
The data are analyzed both quantitatively and qualitatively. The quantitative method is used to assess the data obtains from the questionnaire while the qualitative method is used to interpret and describe the information got from the interview. Qualitative method seeks to understand a given research problem or topic from the perspectives of the local population it involves. This study uses highly structured methods such as questionnaires that consist of 25 questions about climate change material for 35 eleventh grade students of science class 1 at an SMA Srijaya Negara Palembang. For qualitative method is especially effective in obtaining culturally specific information about the values, opinions, behaviors, and social contexts of particular populations. It also uses semi-structured methods such as in-depth interviews. This method describes individual experiences, the interaction between the researcher and the study participant, and she is an English teacher at an SMA Srijaya Negara Palembang. There are 10 open-ended questions, participant is free to respond in their own words, and these responses tend to be more complex than simply "yes" or "no. Participant has the opportunity to respond more elaborately and in greater detail about climate change material.

The research method should be included in the Introduction. The method contains an explanation of the research approach, subjects of the study, the conduct of the research procedure, the use of materials and instruments, data collection, and analysis techniques.

## 3. FINDINGS AND DISCUSSION

### FINDINGS

This study got data from the students' views were related to the students' needs in TSA, deficiency analysis, PSA, and strategy analysis. The data presented in this paper were the highest percentage of the students' views of each question in the questionnaire. The finding is shown in this figure 1.



In Target Situation Analysis (TSA) was concerned about the students' necessities, general intention, and expectations in learning English. The main reason for learning English was the students expected that they could communicate fluently using English in oral communication in the future workplace (76.5%). Then in Deficiency analysis, this part considered the students' current wants and needs and their target situations deficiencies or lacks. The data about the students' current wants and needs related to the topics or input for reading. The students choose topic that they needed were about climate change. 82.4 % of the students gave the positive response that it was important. Then, the students' view of integrating topics that were related to climate change for reading was to help them for some reasons. 60.3% of students considered that integrating climate change in English reading materials could encourage their cultural awareness and improve their English proficiency in reading skills. The aspects of climate change that the students needed to be integrated into English reading materials, most of the students (76.5%) needed to learn climate change related to environment. Dealing with the lack of the students, they found some difficulties with reading skills in learning. The students faced some difficulties in reading skills. Comprehending certain words was categorized as the most difficult skill (66.2%).

In Present Situation Analysis (PSA) focused on the present students' proficiency in English, the materials learned, and the local cultural knowledge of the students. The data about the students' views on their English proficiency is almost all students (73.5%) admitted that their current English proficiency was at the beginner level. Then, 63.2% of students estimated that their current proficiency in comprehending the reading text was good enough. From the data obtained, it is expected that the developed reading materials can enhance the students' English proficiency, especially in reading skills, to a higher level as needed to support their careers in the future. Next in strategy analysis, this part presented the students' preference in learning reading. The data obtained are shows 38.2 % of students preferred to comprehend the text by translating.

## DISCUSSION

### The students' needs viewed by the students

The data got from the students' views were related to the students' needs in TSA, deficiency analysis, PSA, and strategy analysis. The data presented in this paper were the highest percentage of the students' views of each question in the questionnaire.

### Target Situation Analysis (TSA)

This part was concerned about the students' necessities, general intention, and expectations in learning English. The data obtained can be seen in table 1.

**Table 1. The students' view on TSA**

No	Question/ Statement	Students' view	Percentage
1.	The importance of learning English	To help me communicate to others person.	41.2%
2.	The students' expectation toward learning English	To communicate using English in oral communication in the future workplace	76.5%
3.	The language used for students' career	To do oral communication with colleagues or tourists	67.6%
4.	The English proficiency level for students' career	Advance	63.2%

From table 1, the main reason for learning English was to help the students communicate with other people (41.2%). It was in line with the core competence of English subject of the 2013 curriculum which is described the knowledge taught in English was about science, technology, art, culture, and humanities. Then, the students expected that they could communicate fluently using English in oral communication in the future workplace (76.5%). Most of them desired by learning English they could communicate with colleagues or tourists (67.6%). That became the reason that their English proficiency should be at an advanced level in order to support their career (63.2%). As a result, in order for the students to be able to communicate orally, particularly with tourists, they needed to be knowledgeable about a variety of topics, one of which was climate change. They needed to explain and expose their knowledge, ideas and opinions to domestic tourists even the ones from overseas as one of their jobs in the future. One effort to provide knowledge about climate change was by presenting it in reading materials. As stated, the United Nations General Assembly (2012) proclaimed the UN Decade of Education for Sustainable Development (DESD) (David Selby, 2013) is emphasizing that climate change is one of the key action themes of the Decade. Education for Sustainable Development (ESD) aims to promote the knowledge, skills, attitudes and values necessary to shape a sustainable future. It proposes learning methodologies for promoting critical thinking, problem-solving skills, as well as predicting events affecting both natural and human ecosystems and acting on these in collaborative ways. ESD provides an umbrella for many forms of education.

### Deficiency analysis

This part considered the students' current wants and needs and their target situations deficiencies or lacks. The data about the students' current wants and needs related to the topics or input for reading are shown in table 2.

Based on the questionnaire result, 66.2% of students wanted the topic of climate change in reading materials. It could be assumed that the students felt that this topic could support and upgrade their knowledge. It could be seen that 66.2% of the students desired texts related to authentic materials about climate change, which can easily be found in everyday life (for example newspapers, recipes, brochures, advertisements, and others). It was showed that 61.8% of students thought integrating topics that were related to the general knowledge of students' study program for reading, was important. Additionally, the other topics that they also needed were about climate change. 82.4 % of the students gave the positive response that it was important. It is in line with Article 6 of the UN Framework Convention on Climate Change (UNFCCC)2 (United Nations, 2007) encourages Parties to promote, develop and implement educational, training and public awareness programs on climate change and its effects. Climate Change

Education by raising awareness and promoting knowledge and skills-development, education is an essential component and a catalyst for responding to global climate change.

**Table 2. The students' view on current wants and needs**

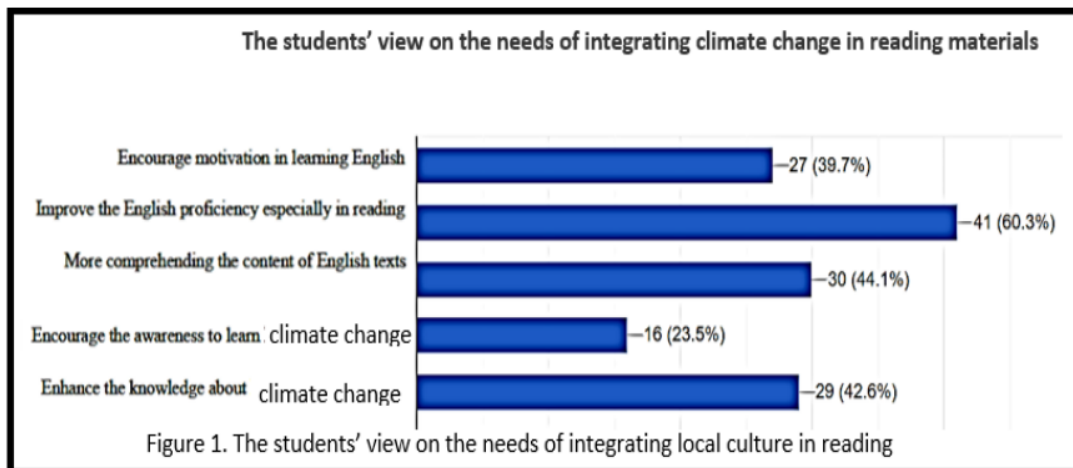
No	Question/ Statement	Students' view	Percentage
1.	Topic desired by students in learning reading	Climate change	66.2%
2.	Students' desired input for reading	Authentic materials about climate change, which can easily be found in everyday life (for example newspapers, recipes, brochures, advertisements, and others).	66.2%
3.	Integrating topics which were related to the general knowledge of students' study program for reading	Important	61.8%
4.	Integrating topics which were related to climate change for reading	Important	82.4 %

Then, the students' view of integrating topics that were related to climate change for reading was to help them for some reasons, as shown in figure 1.

From figure 1, most of the students thought that integrating climate change in reading materials could enhance their knowledge about it (42.6%). Then, 23.5% of students felt the reading materials based on climate change could support their skills related to their study. 60.3% of students considered that integrating climate change in English reading materials could encourage their cultural awareness and improve their English proficiency in reading skills. The other reason was encouraging motivation in learning English (39.7%). 44.1% of students assumed that it could make them more comprehend the texts. It can be because the students have prior knowledge about climate change, are interested and familiar with the reading materials.

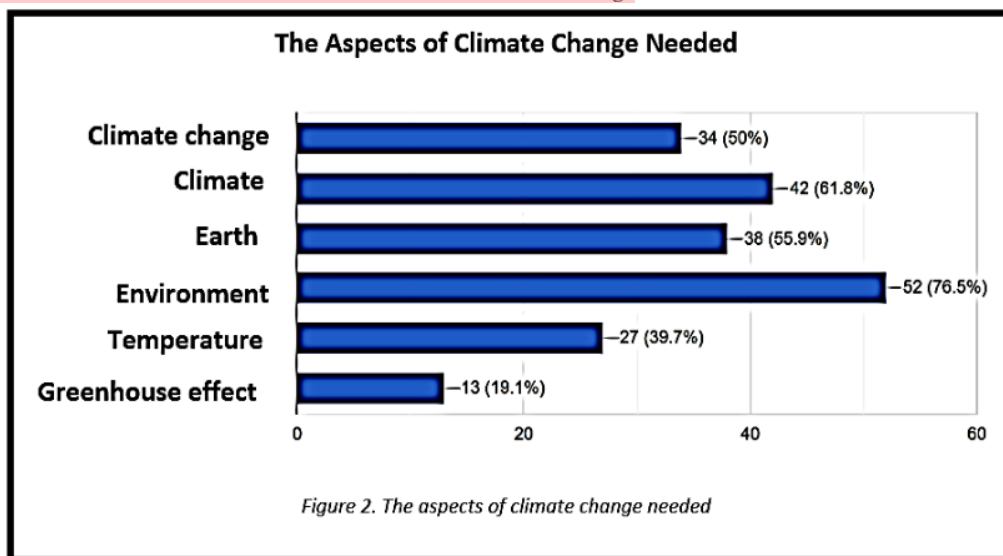
It is in line with the explanation of (Cooper, 1988) about the prior knowledge which is as the background experience of the students is an important element in the reading process. It helps the students to construct an understanding of the reading text. Mukundan, Zarifi, and Kalajahi (2016) explain that if there is no interest in reading, there will be little or no reading activities since the reader will be more delighted to read the topics which are about individual interest. Therefore, providing reading materials that are suitable for the students' interest will motivate them in reading, and finally, can improve their proficiency in reading skills. The international community recognizes the importance of education and training to address climate change. The UN Framework Convention on Climate Change, the Paris Agreement and the associated Action for Climate Empowerment (ACE) agenda (United Nations, 2007) call on governments to educate, empower and engage all stakeholders and major groups on policies and actions relating to climate change. Education is an essential element of the global response to climate change. It helps people understand and address the impact of global warming, increases "climate literacy" among young people, encourages changes in their attitudes and behavior, and helps them adapt to climate change-related trends.





The aspects of climate change that the students needed to be integrated into English reading materials can be seen in figure 2.

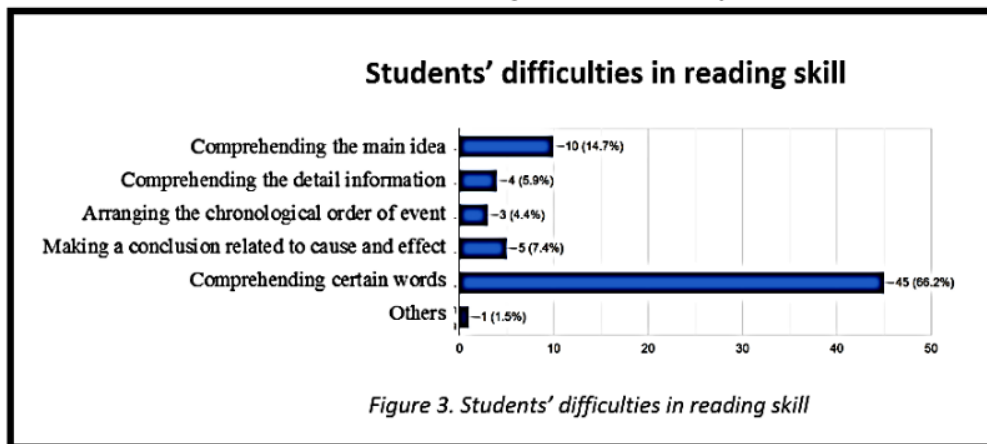
From the figure, most of the students (76.5%) needed to learn climate change related to environment, climate (61.8%), and earth (55.9%). The other aspects of climate change that they need were about extreme weather (50%), temperature (39.7%) and greenhouse effect (19.1%). The data obtained could be the basic about the climate change that should be integrated into developing the reading materials. These aspects of climate change refer to the long-term changes in global temperatures and other characteristics of the atmosphere. Understanding and addressing climate change is critical to EPA's mission of protecting human health and the environment. EPA tracks and reports greenhouse gas emissions, leverages sound science, and works to reduce emissions to combat climate change.



Dealing with the lack of the students, they found some difficulties with reading skills in learning. The data presented in figure 3 show the difficulties faced by the students.

From the figure, the students faced some difficulties in reading skills. Comprehending certain words was categorized as the most difficult skill (66.2%). Then comprehending the main idea (14.7%), concluding cause and effect (7.4%). The other difficulties were comprehending the detail information

(5.9%) and arranging the chronological order or event (4.4%), and the least difficulty was others (1.5%). Hence, it was suggested that in developing the reading materials, the aspects of reading comprehension had to be taken into account besides the content of the reading materials. (Ascend Smart Intervention, 2019) explains there are some aspects of reading comprehension that should be taught and learned; main idea, detail, reference, cause and effect, inference, sequence and vocabulary.



#### Present Situation Analysis (PSA)

This part focused on the present students' proficiency in English, the materials learned, and the local cultural knowledge of the students. The data about the students' views on their English proficiency are shown in table 3. Almost all students (73.5%) admitted that their current English proficiency was at the beginner level. Then, 63.2% of students estimated that their current proficiency in comprehending the reading text was good enough. From the data obtained, it is expected that the developed reading materials can enhance the students' English proficiency, especially in reading skills, to a higher level as needed to support their careers in the future.

**Table 3. The students' English proficiency**

No	Question/ Statement	Students' view	Percentage
1.	Students' current proficiency level of English	Beginner	73.5%
2.	Students' current proficiency in comprehending the reading text	Good enough	63.2 %

The students' view on the existing reading materials learned or provided at school can be seen from the data presented in table 4. The level of the reading text in English coursebooks used was considered quite easy by 61.8% of the students. However, 77.9 % of students felt that the topics were interesting. 50% of students thought that the kind of text commonly found or learned in learning English was descriptive text. 54.5 % of students stated that sometimes English teacher provided reading materials or texts and the questions related to the general knowledge of students' study program for reading. Meanwhile, 47.1 % of students stated that English teachers sometimes provided reading materials or texts and the questions related to climate change for reading. It could be concluded that the students sometimes got the reading materials related to their own local culture.

**Table 4. The existing materials learned and provided**

No	Question/ Statement	Students' view	Percentage
1.	The difficulty level of reading texts in English coursebook	Quite easy	61.8 %
2.	The topics of reading texts in English coursebook	Interesting	77.9 %
3.	The kind of text commonly found or learned in learning English	Descriptive	50 %
4.	The frequency of English teacher provided reading materials or texts and the questions related to the general knowledge of students' study program for reading	Sometimes	54.5 %
5.	The frequency of English teacher provided reading materials or texts and the questions related to climate change for reading	Sometimes	47.1 %

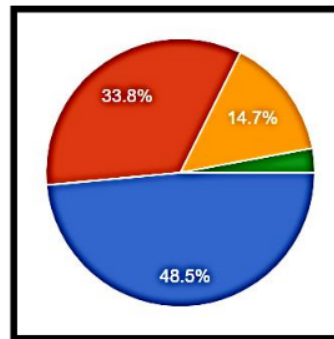
The students' view on their current knowledge about climate change can be seen from the data available in table 5.

47.1% of students estimated that their knowledge about climate change was enough. The aspects of climate change that the students know most were about Environment (25.2 %). 48.5% of students stated that they knew the climate change just from online media. 31.3 % of the students just knew the climate change in their place and the closer districts. Then, 48.5% of them admitted that their knowledge about climate change was still about general information. Based on the data gathered, it was obvious that presented climate change to the students' descriptive reading materials in learning was needed.

**Table 5. The students' climate change knowledge**

No	Question/ Statement	Students' view	Percentage
1.	Students' knowledge about climate change	Enough	47.1 %
2.	The aspects of climate change that the students know	Environment	25.2 %
3.	The way students know about climate change	Online media	48.5 %
4.	The scope of climate change that the students know	In the students' place and the closer districts	31.3 %
5.	The students' knowledge level of climate change	General information	48.5 %

Based on the students' view on their knowledge about climate change, there were several things that the students thought they could do to preserve and develop the climate change. The activities that the students could do are shown in figure 4.



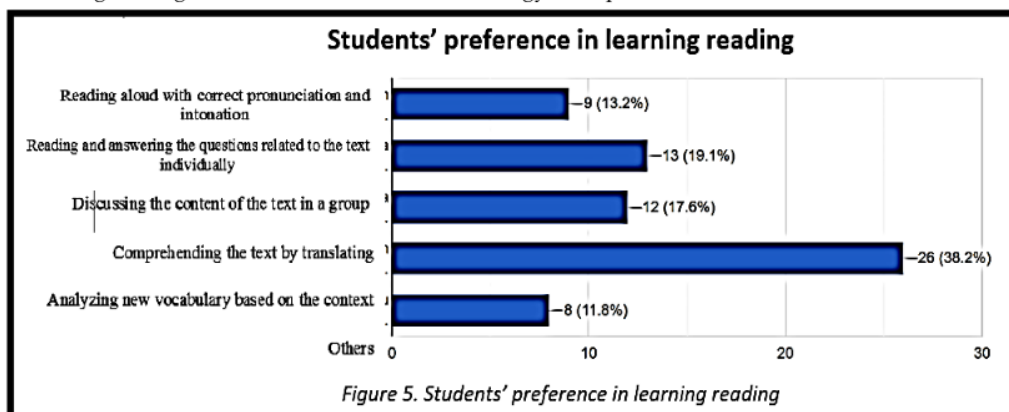
14 Figure 4. The students' activities in preserving climate change. Increasing knowledge and understanding of climate change (blue), applying how to prevent climate change in everyday life (red), taking an active role in preventing climate change (yellow), promoting prevent climate change the region or abroad (green).

Based on the data obtained, 48.5% of students could increase and understand climate change, applying how to prevent climate change in everyday life (33.8% students), taking an active role in preventing climate change (14.7%), and promoting prevent climate change the region or abroad (2.9%).

The data showed that the students had the intention to know more and preserve their climate change. Hence, developing climate change based descriptive reading materials can be a way to enlarge their knowledge as well as to encourage their awareness of the existence of climate change, and help them culturally literate. Education for Sustainable Development program, UNESCO has been working to make education a more central and visible part of the international response to climate change. Education is crucial to promote climate action. It helps people understand and address the impacts of the climate crisis, empowering them with the knowledge, skills, values and attitudes needed to act as agents of change.

### Strategy analysis

This part presented the students' preference in learning reading. The data obtained are shown in figure 5. The figure shows 38.2% of students preferred to comprehend the text by translating. The other ways of learning reading were by 19.1% of students preferred to read and answer the questions related to the text individually and discussing the content of the text in a group (17.6% students). Then 13.2% of students were interested in reading aloud with correct pronunciation and intonation and 11.8% of students were interested in analyzing new vocabulary based on the context, and the students' preference in learning reading should be considered as the strategy to help them to learn.





### The students' needs viewed by the English teacher

Based on the result of the interview with one English teacher, she had her opinion that English subject was important for passing the examination as well as supporting the students' career in the future. The teacher strongly agreed stated:

*"The objectives of English subject are suitable for the requirements of the curriculum, and the English subject is needed to support the content subjects. After graduating, they will have a job based on their field of study so they have to be able to use English."*

However, the teacher thought that the materials available were not really appropriate since most of them were still general.

To overcome this situation the English teacher tried to get supplementary materials for reading by using an ESP book, other commercial books, or taking the materials on the internet. As stated by the teacher:

*"I use the book from the government and a commercial one. I also search for the materials on the internet."*

Presently, teachers just used the materials from the supplementary books or the internet directly or adopt the materials. They did not adapt or develop supplementary reading materials for example related to the general knowledge of content subjects about. All the teachers had a willingness to adapt or develop appropriate reading materials. However, she faced some problems. The teacher stated most of the reason was related to time.

*"I had a very tight schedule in teaching and sometimes I had other responsibilities at school. So, I had no time for developing teaching materials and I am not sure the organization or the reading materials will be good or appropriate with the students."*

These problematic aspects were also faced by the other English teachers in developing English materials. Syamsinar and Jabu (2015) who conducted research dealt with the problems in professional competence faced by senior school English teacher, reported one of the findings was the teacher had problems in developing materials creatively such as the lack of references, the English knowledge was more likely about the general one, and because of the teacher's capacity. (Metboki, 2018) who conducted research about problems hindering the student teachers in developing ELT materials found the problems were the lack of basic concepts about what and the way to develop ELT materials that were appropriate to the needs of the students and the lack of time.

By the students' English proficiency, the teacher estimated it was at the beginner level, some students' reading proficiency was good enough and some of them were still less.

In terms of reading materials, the teacher stated that the reading texts provided in the course books were difficult for the students to understand. Then, the English teachers assumed that the common difficulties faced by the students in reading were in terms of vocabulary and comprehending the text for example the main idea and detail information. As stated by the teacher:

*"The average problem faced by the students is the unfamiliar vocabulary. They need to look up in the dictionary or use google translate application first. In comprehending the text, the students needed to be guided. It depends on their understanding of the vocabulary in the text."*

The most common kind of reading text taught was descriptive text, the other ones such as narrative, procedure, and exposition texts.

The English teachers agreed that integrating certain topics which were related to the general knowledge of students' study program for reading was important, there is only limited reading materials which completed with reading comprehension test about climate change which could meet the students' needs and match their reading level. It was the same case as the integration topics which were related to climate change for reading. As stated, the English teachers:

*"It is needed to present the materials related to the climate change, but there is only limited English reading materials presented to climate change. This topic is real situation, we can find it the real life. The students have to know about the definition climate change, the cause of it and how to prevent it and many more."*

The aspects of climate change suggested were related to extreme weather, climate, earth, environment, temperature and greenhouse effect. Studies from the IPCC (Intergovernmental Panel on

Climate Change) (Witoelar, R, 2020) concludes that the intensity of a changing climate in the past 150 years has increased due to human activities and intervention (anthropogenic intervention) in global, regional, national and local levels. The main human intervention are the over exploitation and use of fossil fuels both petroleum and coal, also forest conversion and un-controlled land use change that released Green House Gasses (GHG) emissions to the atmosphere.

#### 4. CONCLUSION

The English reading materials such as for senior high students should support their needs in English. Once the materials cannot meet the students' needs it is important to develop the materials. One of them is by integrating the climate change as reading materials for the students. The prior thing that must be conducted is doing need analysis. By doing a need analysis, there will be a lot of information obtained. It can be about the necessities, wants, lack of studies, and even the preference in the learning style of the students. That information can be the grounded consideration in developing English materials. Based on the result of the need analysis of this study, English is essential to students' future careers, students' English proficiency is at the beginner level and students still have some difficulties in writing skills. There is a need of integrating English reading materials with the materials of the content subjects because the students still lack knowledge about climate change material, the kind of text needed is an exposition text, and then there is limited existing English reading materials which are integrated with climate change. It is suggested to develop supplementary exposition reading materials by integrating climate change which matches with the students' English proficiency and supports the students' needs. The main reason for integrating climate change material into educational materials are to enhance the knowledge of students.

#### 9

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