

Hots-Based Narrative Reading Materials in the Indonesian Context for the Tenth Grade Students: A Need Analysis

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ABSTRACT

The study aimed to find out the Senior High School (SMA) students' needs in HOTS-based Indonesian narrative reading materials. The subject of this study was the tenth graders of SMAN 19 Palembang. There were three students involved in the one-to-one evaluation and nine students in small group evaluation. The data were obtained through the use of a questionnaire and semi-structured interviews. The data were analyzed both quantitatively and qualitatively. The results of the need analysis showed that: (1) a good ability to read English texts was important, (2) students' English reading skills were good, (3) students agreed that reading English texts on printed media (books) was more fun to read in English textbook, (4) English reading texts with interesting pictures were sometimes available, (5) Indonesian folklores in English texts could improve students' comprehension of Indonesia, (6) the difficulty level of the English texts in the textbook provided by the school was easy, (7) the students totally agreed that the additional materials improved their understanding of Indonesia, (8) English reading texts were more interesting with colorful pictures, and (9) students liked true or false questions in the exercise. The reading test material was categorized as effective. Due to the needs, it was necessary to develop supplementary narrative reading materials in the Indonesian context by integrating HOTS.

Key Words: HOTS; narrative text; Indonesian context; need analysis; reading material

INTRODUCTION

Globalization and internationalization are illustrated by education in the 21st century. Any technical development offers theoretical frameworks and practical perspectives for students and teachers to develop and enhance knowledge, skills, and attitudes (Abao, et al., 2015). Furthermore, McCoog (2008) argues that students must be motivated to develop fresh ideas, assess, and interpret the material presented, and apply the information to their previous learning experiences in order to gain 21st-century skills.

One of the 21st-century learning skills is critical thinking. Critical thinking, both in education in general and in the field of world language teaching in particular, has long been recognized as a valuable skill. Fisher (2001) explains that critical thinking gives a proper direction to think and work and helps in determining the relationship of something with another so that it can make the right decisions. Critical thinking has been described in recent years as one of the skills of the 21st century that students need in modern society to succeed (Partnership for 21st Century Learning, 2015). In the digital disruption era, students can access a large amount of information whenever and wherever they want to. Students demand critical thinking skills both during their studies and in their lives. In addition, to provide a critical-thinking atmosphere, Kim and Pollard (2017) suggest teachers serve as facilitators. In line with this, Hughes (2014) outlines some interesting practices in the language classroom to encourage critical thinking, including 1) fostering a critical mindset; 2) generating opinion and reason; 3) critical questioning; 4) understanding context; 5) establishing connections between subjects; 6) assessing the reliability of sources; 7) position; 8) identifying key arguments and supporting evidence; 9) identifying key arguments and supporting evidence; 10) reading between the lines; 11) incorrect conclusions; 12) writing headlines; 13) identifying the expression; 14) predicting the substance of the text; 15) learning the language to convey critical thinking; 16) planning a group discussion; 17) reviewing the presentation (Hughes, 2014).

Needs analysis (also called needs assessment) is the gathering information activity that will serve as a basis for developing a curriculum to meet the learning needs of a particular group of students (Brown, 1995). Furthermore, Richards (2001) states that procedures used to collect information about learners' needs are known as needs analysis. "Needs" here depends on the perception of those making the judgment. Teachers, learners, administrators, employees, parents, and stakeholders may all have different views as to what needs are. Shing & Sim (2011) conclude that in the effort to determine the learners' academic language needs in the target literacy contexts, "needs analysis" is undoubtedly the most practical and effective platform. Needs analysis is the first step in the course-design cycle in ESP and refers to the systematic analysis of what learners need in order to operate in the target communicative situation (Woodrow, 2017).

There have been numerous studies that dealt with the need analysis related to syllabus design or material development in a certain level of education which were conducted in Indonesia. A number of studies on need analysis also have been conducted in other countries such as Antic & Milosavljevic (2016), Alsamadani (2017), Chetsadanuwat (2018), and Wu et al., (2018). Those investigations showed the necessity and unavoidable function of the need analysis in arranging instructions, designing textbooks, or developing teaching materials. By conducting a need analysis, it could be identified the problem faced by the students, the knowledge or skills needed, or the teaching method that should be used. Furthermore, the result of the need analysis could be the main points that had to be considered to meet the needs of the students.

The first study was done by Antic & Milosavljevic (2016). This paper focused on the linguistic needs of medical students and it also identified the areas perceived as the most problematic and the most important for their future careers. In the study, there 62 medical students, 43 medical doctors, and 24 teaching assistants were involved as the subjects of the study. The second study was done by Alsamadani (2017). The study revealed that receptive skills (i.e., reading and listening) were mostly focused on in ESP classes. It has been also reported that writing and reading along with speaking skills were needed more than others. The third study was done by Chetsadanuwat (2018). This study was aimed at investigating the current needs of English skills of Thai nurses working in 5 JCI-accredited hospitals in Bangkok namely Bangkok Hospital, Samitivej Sukhumvit Hospital, Vejthani Hospital, BNH, and Phayathai2 International Hospital. 20 copies of the ethics-approved questionnaire were randomly distributed to nurses in each hospital. The study revealed that nurses who were considered the primary medical coordinators between patients and physicians had rated listening as the communicative skill most needed and "listening to patient's history, symptoms, and requests" was the function highest needed of this modality. The fourth study was done by Wu et al., (2018). The results showed that: 1) The chemical engineering and technology undergraduate students' level of proficiency in the language skills was medium; 2) The students ranked the language skills listening and speaking) as the most important language skills; 3) Understanding instructions, following question/answer sessions, answering the questions, reading field-related textbooks, instructions for assignments, taking notes in lectures were more emphasized by the students in ESP classes; and 4) The students had positive responses on the needs in ESP.

A number of studies dealing with need analysis have also been conducted in Indonesia such as Poedjiastutie & Oliver (2017), Sultana (2018), Ratri & Puspitasari (2019), Wulandari & Hustarna (2020), and Hajar & Triastuti (2021). The first study was done by Poedjiastutie & Oliver (2017). The findings showed that each group acknowledged the importance of English as a global and international language. The second study was done by Sultana (2018) who tried to investigate the complex world of multi-faced needs of the students at the tertiary level and highlighted core considerations for analyzing these needs through a keen eye on the roots of problems. The third study was done by Ratri & Puspitasari (2019). The finding is that the development of syllabi with local values is urgently needed. The fourth study was done by Wulandari & Hustarna (2020). The focus of this article was on the needs analysis phase in a project exploring the reconstruction of a syllabus and developing teaching materials for Oracy in Academic Context subject. The fifth study was done by Hajar & Triastuti (2021). The results of the study showed that the English learning objective of the agriculture students should make the students able to communicate in English well. Then, English learning materials for agriculture students should be blended with agriculture materials such as cultivation plants and processing agricultural products.

The similarity between these previous studies and the current study is the use of need analysis. Meanwhile, the difference is the teaching material development. The studies above highlighted the need for analysis. However,

this recent study developed HOTS-based reading materials in the Indonesian context. The texts are developed in order to provide students with English reading texts in Indonesian folklores which are hardly available. This study aimed to find out the senior high school students' needs in HOTS-based Indonesian narrative reading materials.

METHODS

This article is part of a larger study that focused on the complete components of design research put forward by Akker (1999). However, this article only focused on one of the analysis phases which was to find out the senior high school students' needs in HOTS-based Indonesian narrative reading materials. This study used descriptive research as a way to investigate the current issue. The need analysis was used in this study. Needs analysis in language teaching may be used for a number of different purposes, for example, (1) to find out what language skills a learner needs in order to perform a particular role, such as sales manager, tour guide, or university students; (2) to help determine if an existing course adequately addresses the needs of potential students; (3) to determine which students from a group are most in need of training in particular language skills; (4) to identify a change of direction that people in a reference group feel is important; (5) to identify a gap between what students can do and what they need to be able to do; and (6) to collect information about particular problem learners are experiencing (Richards, 2001).

Research Design

The research design is clearly described and appropriate for the study.

Research Site and Participants

We conducted this study at a senior high school located in the South Sumatra region of Indonesia. All participants were students in the natural science programs and were in the tenth grade.

Data Collection and Analysis

The data were obtained through a questionnaire. The questionnaire given to the students consisted of 30 questions, thirty-two students participated as the respondents of this study. The questions were classified into Target Situation Analysis (TSA), deficiency analysis, Present Situation Analysis (PSA), and strategy analysis. The interview was conducted with the students, the existing English reading materials, and the use of HOTS in developing English reading materials.

The obtained data from the questionnaire was analyzed by determining the choices that dominate every question and deciding the percentages of students' choices that agree and strongly agree with positive statements and disagree and totally disagree with negative statements.

FINDINGS AND DISCUSSION

Findings

Need analysis is a procedure that needs to be done by researchers when they conduct research and development studies. Nation and Macalister (2010) argue that the need analysis stage will inform the syllabus designers or the teachers about what the learners need in the future. Furthermore, three aspects in need analysis such as the aspects of necessities, the lacks, and wants (Nation & Macalister, 2010). In this research, need analysis was carried out through questionnaires and interviews. The questionnaire for target needs and learning needs were distributed to students, and the interview was conducted with the students.

Researchers conducted need analysis to get some basic information. This information was needed to support the designing process of reading materials. A questionnaire was given to the respondents. The questionnaire includes the description of the students, target needs, and learning needs for English department students. After conducting the need analysis survey, the result of the questionnaire was analyzed by the researchers.

To know students' characteristics, the questionnaire was administered to the X (MIPA) 1 class. It was aimed to find out some information related to students' reading competence, students' interest in reading, the process of teaching and learning, the eagerness of students in reading, students' opinions about types of questions, students' opinions toward text difficulty in available reading material, students' knowledge about Indonesian narrative texts, students' opinion about Indonesian narrative texts in reading material, and students' opinion about textbook was provided by the government. There were 30 questions in the questionnaire, and there were 32 students who participated in answering the questions. The results of the questionnaire are presented in Table 1 below:

Table 1: Students' Reading Competence

No	Questions	Students' Perceptions	Percentage
1	Is a good ability to read English texts important?	Very important	100%
2	How is your English reading skill?	<ul style="list-style-type: none"> • Good • Poor • Very poor 	62% 35% 4%
3	How is your English vocabulary skill?	<ul style="list-style-type: none"> • Very enough • Enough • Poor • Very poor 	4% 54% 38% 4%
4	How is your grammar skill?	<ul style="list-style-type: none"> • Very good • Good • Poor • Very poor 	8% 54% 38% 4%

It can be seen from Table 1 that 100% of the students agreed that a good ability to read English texts was important. Meanwhile, 60% of students rated that their English reading skills was good. 54% of the students estimated that their vocabulary skills were enough and 54% of them estimated that their grammar skills were good.

Table 2: Students' Reading Motivation and Interests

No	Question and Statements	Students' Perceptions	Percentage
1	What do you think about reading English texts?	<ul style="list-style-type: none"> • Very interesting • Interesting 	50% 50%
2	How often do you read English texts at home?	<ul style="list-style-type: none"> • Always • Often • Sometimes • Never 	15% 35% 46% 4%
3	Reading English texts on printed media (books) is more fun than on electronic media (e-books).	<ul style="list-style-type: none"> • Totally agree • Agree • Disagree • Totally disagree 	15% 62% 15% 8%

The students' perceptions of their reading motivation and interests can be seen from the data in Table 2. Fifty percent of the students felt that reading English texts were not only interesting but also very interesting. However, 46% of students stated they sometimes read English texts at home. 62% of the students agreed that reading English texts on printed media (books) was more fun. From the data obtained, it is expected that the developed reading materials can increase the students' reading motivation and interests, especially in reading English texts at home.

Table 3: The Teaching and Learning Process

No	Questions	Students' Perceptions	Percentage
1	How often do the teachers use the lecture method?	<ul style="list-style-type: none"> • Very often • Often • Sometimes 	27 % 65% 8%
2	How are teaching and learning processes in the classroom?	<ul style="list-style-type: none"> • Very interesting • Interesting • Not interesting 	35% 62% 4%
3	How often do the English teachers provide English reading materials about folklore?	<ul style="list-style-type: none"> • Very often • Often • Sometimes • Never 	15% 58% 23% 4%
4	How often do English teachers provide English reading texts with interesting pictures?	<ul style="list-style-type: none"> • Very often • Often • Sometimes • Never 	19% 38% 42% 0 %

The students' perceptions of the teaching and learning process can be seen from the data in Table 3. It was admitted that 65% of the students stated that their teachers often used the lecturing method in teaching. Sixty-two percent of the students felt that teaching and learning processes in the classroom were interesting. 58% of the students stated that the English teachers provided English reading materials about folklore. Furthermore, 42% of the students stated English teachers provided English reading texts with interesting pictures. From the data obtained, it is expected that the developed reading materials can make the teaching and learning process more interesting.

Table 4: Students' Knowledge of Indonesian Narrative Texts

No	Statements	Students' Perceptions	Percentage
1	The students can understand the narrative texts.	<ul style="list-style-type: none"> • Totally understand • Understand • Not understand 	8 % 77% 15%
2	The texts discuss the number of well-known folklores in Indonesia.	<ul style="list-style-type: none"> • More than 10 • 10 • 5 • Less than 5 	46% 31% 19% 4%

3	The English textbooks discuss several topics about Indonesia folklore	<ul style="list-style-type: none"> • More than 2 • 2 • 1 • Nothing 	<p>73%</p> <p>19%</p> <p>4%</p> <p>4%</p>
4	Incorporating Indonesian contexts, especially folklore, in English reading texts is important.	<ul style="list-style-type: none"> • Very important • Important 	<p>58%</p> <p>42%</p>
5	Discussing Indonesian folklores in English texts helps students understand the reading text.	<ul style="list-style-type: none"> • Totally agree • Agree 	<p>27%</p> <p>73%</p>
6	Indonesian folklores in English texts can improve students' comprehension of Indonesia.	<ul style="list-style-type: none"> • Totally agree • Agree • Disagree 	<p>62%</p> <p>34%</p> <p>4%</p>

The students' perceptions of their knowledge of Indonesian narrative texts can also be seen from the data in Table 4. Seventy-seven percent of the students stated that they could understand the narrative texts. 46% of the students stated that the texts discussed the number of well-known folklores in Indonesia was more than 10. 73% of the students mentioned that the English textbooks discussed more than 2 topics about Indonesian folklore. 58% of the students agreed that incorporating Indonesian contexts, especially folklore, in English reading texts was important. 73% of the students agreed that discussing Indonesian folklores in English texts helped students understand the reading text. And 62% of the students totally agreed that Indonesian folklores in English texts could improve students' comprehension of Indonesia. From the data obtained, it is expected that the developed reading materials can enhance students' knowledge of Indonesian narrative texts.

Table 5: Students' Strategies to Solve Difficulties in Reading English Texts

No	Statements	Students' Perceptions	Percentage
1	Asking the teacher	<ul style="list-style-type: none"> • Very often • Often • Sometimes • Never 	<p>12%</p> <p>42%</p> <p>38%</p> <p>8%</p>
2	Asking friends or studying with them	<ul style="list-style-type: none"> • Very often • Often • Sometimes • Never 	<p>35%</p> <p>35%</p> <p>27%</p> <p>3%</p>
3	Independent learning	<ul style="list-style-type: none"> • Very often • Often • Sometimes • Never 	<p>42%</p> <p>42%</p> <p>15%</p>
4	Giving up or doing nothing	<ul style="list-style-type: none"> • Very often • Often • Sometimes • Never 	<p>4%</p> <p>15%</p> <p>62%</p> <p>19%</p>

Table 5 shows the students' perceptions of their strategies to solve difficulties in reading English texts. Dealing with students' strategies to solve difficulties in reading English texts, 42% of the students stated that they often asked the teacher, 35% of the students stated that they often asked friends or studied with them, and they also very often asked friends or studied with them while 62% of the students stated that they gave up or did nothing. From the data obtained, it is expected that the developed reading materials can vary students' strategies to solve difficulties in reading English texts.

The students' perceptions on their opinions about difficulties of reading materials and textbooks from the government can be seen in Table 6 below.

Table 6: Students' Opinions about Difficulties of Reading Materials and Textbooks from the Government

No	Questions	Students' Perceptions	Percentage
1	What is the difficulty level of the English texts in the textbook?	<ul style="list-style-type: none"> • Very easy • Easy • Difficult • Very Difficult 	0% 54% 38% 8%
2	What is the difficulty level of the English texts in the textbook provided by the school?	<ul style="list-style-type: none"> • Easy • Difficult 	58% 42%
3	Does the difficulty level of the English texts in the textbook suit the English proficiency?	<ul style="list-style-type: none"> • Very suitable • Suitable • Not suitable 	12% 62% 26%

From Table 6, it is revealed that 54% of the students felt that the difficulty level of the English texts in the textbook was easy. 58% of the students felt that the difficulty level of the English texts in the textbook provided by the school was easy, and 62% of the students felt that the difficulty level of the English texts in the textbook suited their English proficiency. From these data, it is expected that the developed reading materials can increase the difficulty level of the English texts in the textbook.

Table 7: Students' Opinion about Indonesian Narrative Texts

No	Statements	Students' Perceptions	Percentage
1	Incorporating subject matter related to the Indonesian context, especially folklore, in English reading texts is important.	<ul style="list-style-type: none"> • Very important • Important 	58% 42%
2	Discussing Indonesian folklores in English texts helps students understand the reading text.	<ul style="list-style-type: none"> • Totally agree • Agree 	27% 73%
3	The additional materials improve the students' understanding of Indonesia.	<ul style="list-style-type: none"> • Totally agree • Agree • Disagree 	62% 35% 3%

The students' perceptions about Indonesian narrative texts can be seen from the data in Table 7. Fifty-eight percent of the students agreed that incorporating subject matter related to Indonesian context, especially folklore, in English reading texts was very important, 73% of the students agreed that discussing Indonesian folklores in English texts helped students understand the reading text, and 62% of the students totally agreed that the additional materials improved the students' understanding of Indonesia. From the data obtained, it is expected

that the developed reading materials can improve the students' understanding of Indonesia.

Table 8: Illustrations, Images, or Pictures in English Reading Texts

No	Statements	Students' Perceptions	Percentage
1	English reading texts are more interesting with colorful pictures.	<ul style="list-style-type: none"> • Very interested • Interested • Not interested 	62% 35% 3%
2	Pictures can help students understand the English text.	<ul style="list-style-type: none"> • Very helpful • Helpful 	58% 42%
3	Illustrations or pictures can influence students' reading interests.	<ul style="list-style-type: none"> • Very influential • Influential • Not influential 	46% 50% 4%
4	The images can increase reading motivation.	<ul style="list-style-type: none"> • Totally agree • Agree • Disagree 	35% 58% 7%

The students' perceptions of illustrations, images, or pictures in English reading texts can be seen from the data in Table 8. It was found that 62% of the students felt that English reading texts were more interesting with colorful pictures, 58% of the students stated that pictures could help them understand the English text, 50% of the students felt that illustrations or pictures could influence their reading interest, and 58% of the students agreed that the images could increase reading motivation. From these data, it is expected that colorful pictures will be available in the developed reading materials.

Table 9: Students' Opinions about Types of Questions

No	Statements	Students' Perceptions	Percentage
1	Multiple choices	<ul style="list-style-type: none"> • Really like • Like • Dislike 	38% 54% 8%
2	True or false	<ul style="list-style-type: none"> • Really like • Like • Dislike 	35% 65% 0%

The students' perceptions of types of questions can be seen from the data in Table 9. It can be seen that 54 % of the students liked multiple-choice questions. Meanwhile, 65% of the students liked true or false questions. From the data obtained, it is expected that the developed reading materials consist of multiple-choice questions.

Nation and Macalister (2010) take into account three aspects: the aspects of necessities, the lacks, and the wants. In this research, need analysis involves a questionnaire and interview. The results of the questionnaire showed that the practicality of the product being developed was high. The first aspect of all practicality, relevant to student needs had been evaluated as high (High Practicality). It can be said that the product developed was relevant to students. The reading texts which told several legends in Indonesia were very suitable for students in grade 10. In addition, the product being developed also matches the knowledge background of the topic used.

It is in line with Margana & Widyanoro (2017) that the development of HOTS as performance in every task should become the main concern because it could enhance the critical thinking of students which serves as the basis of establishing students' creativity and self-regulated learning on the part of students.

DISCUSSION

Need Analysis and Its Importance

Nation and Macalister (2010) emphasize the significance of need analysis in educational research and curriculum development. The need analysis process informs syllabus designers and educators about learners' necessities, lacks, and wants. In this study, need analysis was conducted using questionnaires and interviews to gather crucial data for developing reading materials for English department students. The questionnaire covered various aspects, including students' reading competence, motivation, teaching and learning processes, knowledge of Indonesian narrative texts, strategies for overcoming reading difficulties, and preferences for reading materials and types of questions.

Students' Reading Competence

The findings from Table 1 indicate that students recognize the importance of having good English reading skills, with 100% of them considering it very important. However, there is a disparity between their recognition of importance and their self-assessed skills, with only 62% rating their reading skills as good and a significant portion (38%) considering their grammar skills as poor. This gap suggests a need for targeted interventions to enhance students' vocabulary and grammar skills, aligning with the necessity aspect highlighted by Nation and Macalister (2010).

Reading Motivation and Interests

Table 2 reveals that students find reading English texts interesting (100%), but only a small percentage (15%) read them always at home. This indicates a lack of motivation to engage in reading outside the classroom. The preference for printed media over electronic media (62%) suggests that incorporating more printed materials could potentially increase their engagement. According to Deci and Ryan's (1985) Self-Determination Theory, intrinsic motivation is crucial for sustained engagement in learning activities. Thus, developing reading materials that cater to students' interests and preferences is essential for fostering intrinsic motivation.

Teaching and Learning Process

The data in Table 3 show that a majority of students find the teaching and learning process interesting (62%), but there is a heavy reliance on the lecture method (65%). This traditional approach might not be the most effective in engaging students. Constructivist theories, such as those proposed by Vygotsky (1978), emphasize the importance of interactive and student-centered learning experiences. Incorporating diverse teaching methods and interactive reading materials could make the learning process more engaging and effective.

Knowledge of Indonesian Narrative Texts

Table 4 illustrates that students have a good understanding of Indonesian narrative texts, with 77% stating they understand them. The majority also agree that incorporating Indonesian contexts, especially folklore, into English reading texts is important (58%). This aligns with the cultural relevance theory proposed by Gay (2010), which argues that integrating culturally relevant content can enhance students' learning experiences and outcomes. By incorporating Indonesian folklore into English reading materials, educators can create a more relatable and engaging learning experience for students.

Strategies to Overcome Reading Difficulties

The strategies students use to overcome reading difficulties, as shown in Table 5, include asking teachers and friends, and independent learning. However, a notable portion (62%) sometimes gives up or does nothing when

facing difficulties. This indicates a need for developing materials and strategies that support self-regulated learning, as emphasized by Zimmerman (2002). Providing scaffolding and resources that encourage students to persist through challenges can help build their resilience and problem-solving skills.

Opinions about Reading Materials and Textbooks

Table 6 reveals that while the majority of students find the difficulty level of English texts in textbooks easy (54%), there is still a significant portion (42%) who find it difficult. This suggests a need for differentiated materials that cater to varying proficiency levels, aligning with Vygotsky's (1978) Zone of Proximal Development (ZPD) theory. By providing texts that are within students' ZPD, educators can offer appropriate challenges that promote learning and development.

Preferences for Types of Questions

As seen in Table 9, students have a preference for multiple-choice and true/false questions. This preference can be leveraged in developing assessment materials that align with students' comfort levels while gradually introducing more complex question types to develop higher-order thinking skills. Margana and Widyantoro (2017) emphasize the importance of developing Higher-Order Thinking Skills (HOTS) to enhance students' critical thinking and creativity. Incorporating a variety of question types that challenge students can contribute to this goal.

The findings from this need analysis provide valuable insights into the students' reading competence, motivation, and preferences, which can inform the development of reading materials. By addressing the identified needs and incorporating relevant theories, educators can create engaging and effective learning experiences that promote students' reading skills, motivation, and overall learning outcomes. This aligns with the broader goal of fostering self-regulated and motivated learners capable of critical thinking and creativity.

CONCLUSIONS AND SUGGESTION

The English reading materials such as the one for the tenth-grade students should support their needs. Once the materials cannot meet the students' needs, the teachers must develop their teaching materials. One of them is by integrating the reading materials with HOTS. The prior thing that must be conducted is doing a need analysis. By doing a need analysis, there will be a lot of information obtained. It can be about 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 learning materials.

Based on the results of the need analysis of this study, it is suggested to develop supplementary Indonesian narrative reading materials by integrating HOTS. Nevertheless, since this study was only conducted in a small testing group, X (MIPA) 1 class of SMA Negeri 19 Palembang, it is strongly recommended that future studies find more participants. It might illustrate broader data related to the teaching materials needs, especially for natural sciences programmes in senior high schools. Another consideration is that due to time limits, this study can only be carried out in the need analysis stage. It is hoped that future studies can develop teaching materials based on the need analysis that has been obtained.

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