Are They on Target? The Order of Thinking Skills of the Reading Comprehension Questions and Tasks of the *Merdeka* Curriculum English Textbook for Indonesian High School

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Abstract

This study sought to investigate the order of thinking of the reading comprehension questions and tasks of the English textbook for Grade 10 of Indonesian high school. The textbook was written within the framework of the Merdeka Curriculum to promote Higher Order of Thinking (HOTS) and was launched by the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia in 2022. Drawing on a Quantitative Content Analysis design by using the Revised Bloom's Taxonomy as a reference for identification of HOTS, the present study analyzed 50 reading questions and tasks of the textbook. The results showed that the majority of the questions and tasks focused on remembering and evaluating the texts and required the reader to recall and comprehend the information that mostly belonged to the category of Lower Order of Thinking (LOTS). There were only few questions and tasks that required the readers to analyze and create based on the information from the text. To some extent, these showed a misalignment between what the Merdeka Curriculum seeks to promote in terms of HOTS and what the textbook realizes.

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Introduction

Higher Order Thinking Skills (HOTS) are important because they enable people to assess information, make educated decisions, solve issues successfully, and think creatively. Individuals with these skills may critically assess information, produce new ideas, and comprehend difficult concepts. As such HOTS can be considered essential life skills because they help individuals navigate and succeed in various aspects of life (Swift, 2021). In addition, studies show that thinking skills are also important for effective learning as they positively contribute to students' academic performance (Cremin & Arthur, 2014; Tanujaya et al., 2017; Ghazivakili *et al.,* 2014). Aware of the fundamental role of HOTS, educators and education authorities across the globe have been stressing and addressing the need for developing learners' HOTS through curriculum and learning. The Organization for Economic Cooperation and Development (OECD), for example, listed thinking skills as one of essential skills and competences for the 21st century (Ananiadou, & Claro, 2009). In this light, the development of learners' HOTS has also been part of the objectives of education in Indonesia. By Referring to the Revised Bloom's Taxonomy (Anderson, & Krathwohl, 2001), the 2013 Curriculum, which was implemented from 2013 to 2021, sought to develop the student's High Order Thinking Skills (HOTS) both through teaching and learning activities as well as through learning materials (Krisna et al., 2020). For this purpose, the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia also provided textbooks for almost all school subjects, including English. As a part of the campaign to promote HOTS- oriented teaching and learning, the textbooks were purported to contain materials, including tasks, that are of HOTS in nature.

Studies on the extent to which the 2013 Curriculum textbooks accommodated HOTS showed, however, that they hardly did so.   Research By Suvina and Ramly (2021), for example, found that only 60 out of 138 questions and tasks of the *Bahasa Indonesia* textbook for grade 10 were of HOTS. Low proportion of HOTS tasks and question were also found in the textbooks of mathematics for elementary school (Shalikhah et al.,2021), Indonesian history for grade 10,11, and 12 (Maria, 2018), Arabic for grade 10 (Verawati et al*.,* 2022), chemistry for 12 (Andari et al., 2021). As for English, the phenomena were also similar. Study by Atiullah et al. (2019), for instance, found that only 24 out of 158 reading comprehension questions of the English textbook for grade 10 were of HOTS. Low proportion of HOTS tasks and questions as compared to those of lower order of thinking skills (LOTS) were also found in English textbooks for grade 11 and 12 (Zainil & Rosa, 2020). Later on, In February 2022 the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia launched a new curriculum called *Kurikulum Merdeka* or Merdeka Curriculum which stresses on student-centered learning and, similar to the 2013 Curriculum, on the development of students' HOTS. A grace period is provided for schools in impementing of the Merdeka Curriculum.   During this period, schools have the option either to use the new curriculum, use it in combination with the 2013 curriculum, or continue to only use the 2013 curriculum. However, by August 2022, 142.000 schools had already implemented it (Kompas, 2022). The

ministry sets the 2026/2027 academic year as the deadline for school to start a full implementation of the curriculum.

As part and parcel of the new curriculum, the ministry also launched English textbooks for elementary secondary, and senior high school. However, as far as the literature is concerned, studies that explore the extent to which the new curriculum English textbooks promote HOTS are hardly available. To date, only one such study, i.e. Arlansyah et al. (2023) that analyzed the order of thinking skills of the reading questions of the English textbook for grade 7 of junior high school, is available. This study showed that the majority of the questions were of Lower Order Thinking Skills (LOTS). In light of this, the present study is timely in seeking to fill the gap in literature on the issue, particularly in the context of the English textbook for senior high school. Focusing on the reading materials of the English textbook for grade 10 of senior high school, the present study sought to answer the following research questions: 1. Revering to the Revised Bloom's Taxonomy (Anderson, & Krathwohl, 2001), what are the levels of order of thinking of the reading comprehension questions and task of the textbook? 2. What is the proportion of HOTS in the reading comprehension questions and task of the textbook? Novelty-wise, the present study will fill the aforementioned research gap on HOTS contents in the Merdeka Curriculum textbooks for senior high school. In addition, it should also serve as a stepping stone for further studies on the issue. Practically, the study provides important information for education authorities, textbook writers, and educators on the issue that they can refer to in their relevant professional decision making.

Theoretical Framework and Literature Review

This section presents discussions on topics central to the study. This includes a review of the Revised Bloom's Taxonomy, the objectives of the teaching of English reading at grade 10, and a review of relevant studies.

The revised bloom's taxonomy and the order of thinking skills

The Revised Bloom's Taxonomy, henceforth abbreviated RBT (Anderson, & Krathwohl, 2001), is an improved version of Bloom's Taxonomy (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) which was a framework for categorizing educational learning objectives based on cognitive complexity and specificity. It sought to improve on the original taxonomy by making it easier to grasp and apply in schools and other learning settings. The original Bloom's Taxonomy was meant to be a mechanism to categorize educational aims and objectives. It consisted of six cognitive levels: knowledge, comprehension, application, analysis, synthesis, and evaluation. However, over time, it was identified that the original taxonomy was too complex and difficult to use for many teachers and instructional designers (Wilson, 2016). RBT was created to solve these problems by breaking down the taxonomy into three major domains: cognitive, emotional, and psychomotor. For the cognitive domain, which is the focus of the present study, the original taxonomy's six levels were categorized into six verbs: Remember, Understand, Apply, Analyze, Evaluate, and Create. The revisions are summarized in the following figure.

Figure 1. Original and Revised Bloom's Taxonomy
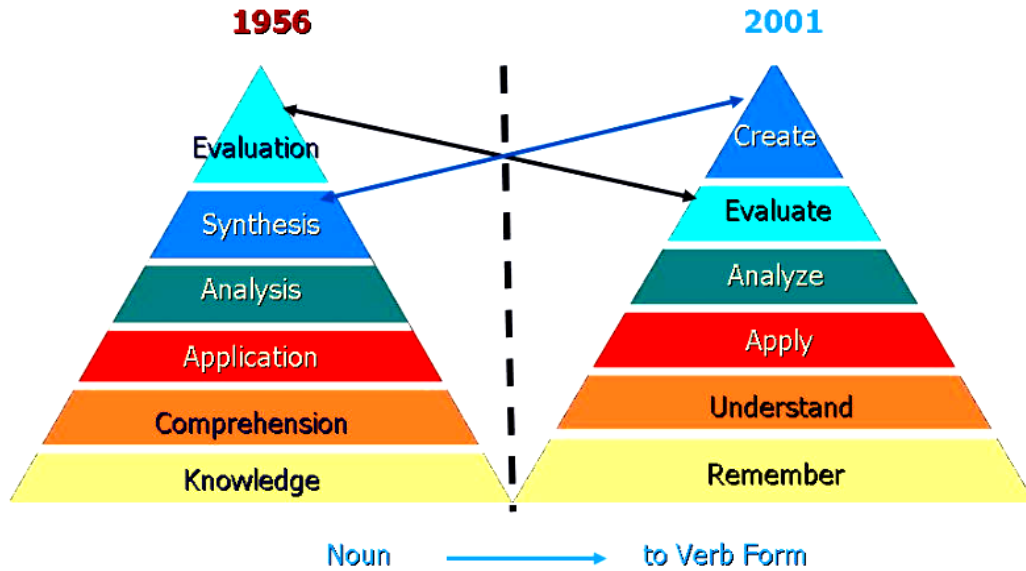
Source: Wilson (2016).

RBT also supplied explicit explanations and examples for each of the verbs to assist instructors and instructional designers in understanding and applying the taxonomy which are summarized in the following table:

Table 1. *Revised Bloom's taxonomies of the cognitive domain*

Level	Description
1. Remember	Recognizing or recalling knowledge from memory. Remembering is when memory is used to produce or retrieve definitions, facts, or lists, or to recite previously learned information.
2. Understand	Constructing meaning from different types of functions be they written or graphic messages or activities like interpreting, exemplifying, classifying,
3. Apply	Carrying out or using a procedure through executing, or implementing. Applying relates to or refers to situations where learned material is used through products like models, presentations, interviews or simulations.
4. Analyze	Breaking materials or concepts into parts, determining how the parts relate to one another or how they interrelate, or how the parts relate to an overall structure or purpose. Mental actions included

	in this function are differentiating, organizing, and attributing, as well as being able to distinguish between the components or parts. When one is analyzing, he/she can illustrate this mental function by creating spreadsheets, surveys, charts, or diagrams, or graphic representations.
5. Evaluate	Making judgments based on criteria and standards through checking and critiquing. Critiques, recommendations, and reports are some of the products that can be created to demonstrate the processes of evaluation.
6. Create	Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. Creating requires users to put parts together in a new way, or synthesize parts into something new and different creating a new form or product.

Source: Wilson (2016).

In the revised taxonomy, the six levels of the cognitive ability hierarchy are arranged in the order of increasing sophistication and complexity and categorized into 2 main tiers. The first three levels of the hierarchy, i.e. remember, understand, and apply, are of LOTS. While, the upper three levels of the hierarchy, i.e. Analyze, Evaluate, and Create, are referred to as HOTS. These skills involve more complex cognitive processes that require ones to go beyond simply recalling information (Zapalska et al., 2018).

As a widely used reference for categorizing and ordering educational learning objectives, the revised taxonomy is also, consequently, widely referred to in the construction and evaluation of assessment materials across different disciplines. Test writers and teachers, for example, refer to the taxonomy in determining the complexity of test items and tasks (Brookhart, 2010; Mohammadi et al., 2015; Baghaei et al., 2021). In the Indonesian context of education, the Ministry of Education, Culture, Research and Technology, in fact, published a guidebook for teachers on HOTS-oriented learning which included a section on HOTS-based learning evaluation. The book suggest that evaluation should focused on three domains: attitude, knowledge, and skill. For attitude, the evaluation is to be conducted through observations and interviews. Evaluation of knowledge is to be conducted through written and spoken tests as well as assignments which center on HOTS. As for evaluation of skills, the evaluation is to be conducted by means of performance test, project, and portofolio (Direktorat GTK, 2018).

Principles and levels of HOTS tasks and questions

The Guidelines for the Construction of HOTS Questions (PPP Kemendikbud & Abduh, 2019) list three principles to be referred to in the development tasks and questions for assessing HOTS. First, the use of stimuli, such as texts, picture, tables, diagrams, figures, dialogues, videos, or problems, as media for students to think of. An absence of a stimulus would result in questions assess LOTS. Second, the use of new contexts for the questions in terms of contents and the construction of the question. Again, this is meant to avoid the student relying of their LOTS because of the use of contexts they already familiar with or of

general knowledge. Third, distinguishing levels of difficulty from the complexity of the process of thinking. The guidelines argues that the two are different in nature. Both LOTS and HOTS questions can be either easy or difficult, depending on their complexity. For example, a LOTS question like "Who was the Indonesian President that opened that the 16ᵗʰ Non-Aligned Movement Conference?" is relatively difficult. Similarly, a HOTS question like "Why did Sari lend Dini her book event though she knew Dini had lied to her before?" can be relatively easy for a student who remember that the reason is mentioned in the reading text the question comes with (PPP Kemendikbud & Abduh, 2019; p.7).

On the construction of HOTS questions, either for teacher-student classroom interaction or for learning evaluation purposes, the guidebook specifies the questions are classified into 4 levels based on the degree of their complexity. First, *inference questions* which aim to reveal what is seen or found and what is understood by students after observing or reading the material presented by the teacher. For example, "Did you find any strengths or weaknesses in what you read?". Second, *interpretation questions* that are intended for students to give the meaning of a consequence of a symptom or a cause that exists. For example, "What is your conclusion after reading the passage?". Third, *transfer questions* that seek to extend the scope of the issue in question. For example, "What is the difference between theory x and theory y?". Fourth, *hypothesis questions* that trigger projections or forecasts of a problem faced or drawing conclusions for generalization. For example, "What happens when the hot and cold weather changes quickly?" (Direktorat GTK, 2018; pp.37-39).

The objectives of english learning in the merdeka curriculum

The Merdeka Curriculum divides the goals and materials covered in elementary and secondary education into 6 interconnected phases. The three phases of elementary education are: Phase A, covering grades 1 and 2; Phase B, covering grades 3 and 4; Phase C, covering grades 5 and 6. Secondary education is divided into Phase D, covering grades 7, 8, and 9; Phase E, covering grade 10; and Phase F, covering grades 11 and 12 (Kemendikbudristek, 2022). The primary focus of English instruction in Phase A is to introduce students to the language and build their basic speaking abilities. Phases B and C build on these skills by improving speaking abilities and introducing writing. This continues to be emphasized in Phase D. The ultimate goal of English education in Phase E and F is to reach B1 level proficiency of the Common European Framework of Reference for Languages or CEFR (Kemendikbudristek, 2022). The description of the proficiency of the CEFR B1 level reads,

> Understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. Can deal with most situations likely to arise whilst traveling in an area where the language is spoken. Can produce simple connected text on topics which are familiar or of personal interest. Can describe experiences and events, dreams, hopes or ambitions and briefly give reasons and explanations for opinions and plans. (Council of Europe, 2020).

For reading comprehension, the highest order of thinking sought is *evaluate*. The curriculum specifies,

> By the end of Phase E, students read and respond to a variety of texts, such as narratives, descriptions, procedures, expositions, recount and report. They read to learn or to find information. They locate and evaluate specific details and main ideas of a variety of texts. These texts may be in the form print or digital texts, including visual, multimodal or interactive texts. They are developing understanding of main ideas, issues or plot development in a variety of texts. They identify the author's purposes and are developing simple inferential skills to help them understand implied information from the texts (Kemendikbudristek, 2022; pp. 163-164).

Research on the order of thinking of English reading comprehension questions and tasks

Current research using the Revised Bloom's Taxonomy as a framework to analyze the cognitive demands of reading comprehension questions and tasks suggest that the order of thinking in English as a Foreign Language (EFL) reading comprehension questions and tasks plays an important role in students' language development and understanding of text. Nourdad et al.'s (2018) quasi-experimental study on the effect of teaching higher-order thinking skills on the reading comprehension ability of Iranian EFL learners, for example, showed a positive effect of teaching HOTS on improving the reading comprehension ability of adult EFL learners. In addition, study by Sitorus et al., (2021) mixed-method on the effect of HOTS on reading comprehension of Indonesian Junior High school students showed that HOTS had a significant effect on reading comprehension, as measured by a t-test and interviews.

Furthermore, Armala et al., (2022) qualitative study showed that their research sample of Indonesian high school students had good ability to answer LOTS reading questions but lacked the ability to answer HOTS questions. The study concluded that there is a significant difference between students' abilities to answer reading questions based on LOTS and HOTS, and that students' abilities to answer reading questions based on both should be improved. To sum up, these studies suggest that HOTS instruction has a positive effect on EFL students' reading ability, particularly on reading comprehension. The studies provide pedagogical implications for language teachers, course book developers, and educational policy makers, and highlight the need to improve students' abilities to answer reading questions based on both LOTS and HOTS.

Despite the important role of the order of thinking of reading comprehension questions and tasks play in students' language development and understanding of texts as discussed above, research that examined the cognitive levels of reading comprehension issue in the Indonesian EFL Textbooks of the 2013 Curriculum using content analysis and a revised Bloom's Taxonomy implied that higher order thinking abilities are lacking in EFL textbooks. For example, Laila and Fitriyah (2022) discovered that the English textbook for 12th grade students had a larger percentage of LOTS problems compared to those of HOTS (83% vs. 17%). Similarly, research by Surtantini (2019) on English Students' Book for Grade X

demonstrated that while some of the comprehension questions (21%) required HOTS. However the rest (nearly 80%) were of LOTS. However, a greater portion of HOTS were repeatedly found in the reading comprehension questions and tasks in the English textbook for grade 10 (Sukmawijaya et al.,2020; Saputri, 2021). In conclusion, these studies suggest that there is a lack of higher order thinking skills in EFL textbooks used in high schools. This highlights the need for teachers to construct their own reading comprehension questions that better assess higher order thinking skills and reading skills.

Methods

Design and Data sources

This research employed a quantitative content analysis design (Coe and Scacco, 2017). The primary materials analyzed in this research were the reading comprehension questions and tasks of the English textbook for grade 10 of senior high school entitled "Bahasa Inggris: Work in Progress" which was written within the "Kurikulum Merdeka" framework and published by the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia in 2022. The textbook focuses on the development of the four basic English skills: listening, reading, speaking, and writing. The textbook was co-authored by a team of writers and consists of six chapters. The chapters are further partitioned into two themes to be covered in two semesters. The first three chapters that are on sports are to be covered in semester one. The other three chapters are on arts and designed for semester two. All the chapters are divided into sections on speaking, listening, reading and viewing, writing and presenting, project, vocabulary, and grammar and structure.

Considering the focus of the study, the data source for this research was limited to the reading comprehension questions and tasks found in each chapter of the textbook. A total of 50 reading comprehension questions and tasks were analyzed in this research, consisting of 34 questions and 16 tasks.

Data analysis

The data analysis procedure followed the method proposed by Baghaei et al. (2020). The first step involved identifying the reading comprehension questions and tasks of the textbooks. The next step involved the analysis of the level of the order of thinking the questions and the tasks based on the descriptions of the Revised Bloom's Taxonomy (Table 1) by the researchers and an external analyst separately. The final step was comparing the findings from the researchers and the external analyst to ensure the validity and reliability of the analysis. Any differences in the findings were discussed and the final decision of the levels of the order of thinking of the reading comprehension questions and tasks was made.

Findings

The examination of the 50 reading questions and tasks based on the updated Bloom's taxonomy (Table 2) reveals that the majority of the questions and tasks studied (a total of 18 out of 50) are at the "Remember" level. This suggests that the questions and activities are essentially designed to elicit the student's remembrance of information he or she reads in the text. There are 15 out of 50 questions and exercises that are in the "Evaluate" level; 10 out of 50 questions and activities in the Understand level; and 6 out of 50 questions and activities were discovered at the "Analyze" level, indicating that the questions and tasks focus on breaking down the material from the text into its components and on comprehending their relationships. Only 1 task was found to be on the "Create" level. However, no questions or tasks were found to be at the "Apply" level. These findings suggest that the majority of the questions and tasks focus on the remembering and evaluation of the texts, which requires the student to recall and comprehend the information. There were only few questions and tasks that require the student to analyze and create based on the information of the text.

Table 2. *General findings*

No	Order of Thinking	Frequency	Sample Question and Task
1	Remember	18	-How did he get known as a rocket man? (p.12) - Match the topics about Cristiano Ronaldo below with the information from each paragraph in the text. (p.12).
2	Understand	10	- Why did the wolf ask Little Red Riding Hood where her grandmother lived? (p.136) -Guess the meaning of these words/phrases from the text using context clues (p.36).
3	Apply	0	
4	Analyze	6	- What is the author claiming in text 1 and text 2? (p.114) - Read the two texts again carefully this time, pay attention to the details, then select the best answer. (p.112).
5	Evaluate	15	-What might happen if the woodsman were not there? (p.136) -Decide if the statements are true or false according to the infographics. (p.63).
6	Create	1	-Rearrange the paragraphs into a meaningful text. (p.34).
Total		50	

Reading comprehension questions

The results of the analysis of 34 reading comprehension questions based on the revised Bloom's taxonomy (Chart 1) show the following distribution of order of thinking skills:

- Remember: 6 questions (17.6%) required the recall of information or previously learned knowledge.
- Understand: 9 questions (26.5%) required a deeper understanding of the material by explaining, summarizing, or translating the information.
- Apply: 0 questions (0%) required the use of information in a new situation or context.
- Analyze: 5 questions (14.7%) required the examination of information to identify relationships, patterns, or themes.
- Evaluate: 14 questions (41.2%) required making judgments about the value, quality, or truth of information based on criteria or standards.
- Create: 0 questions (0%) required the production of something original or novel from information.

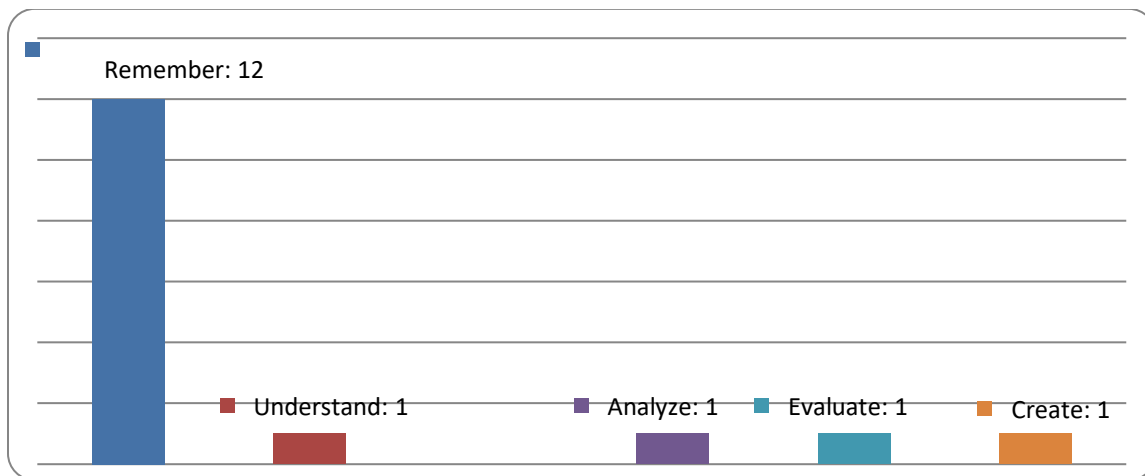**Chart 1.** *Order of thinking of the reading comprehension questions*
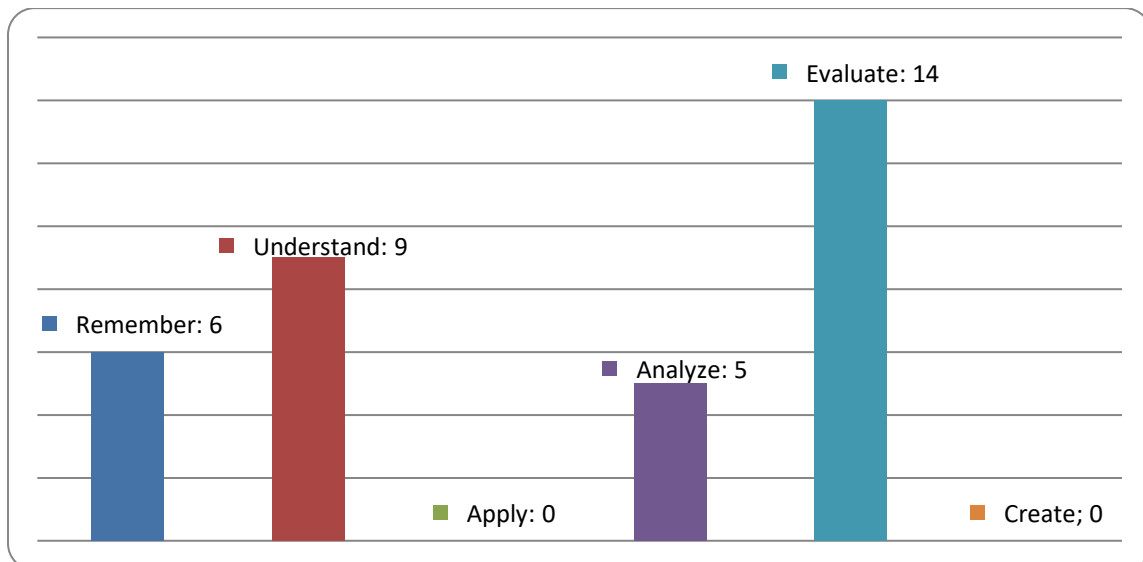
In short, most of the reading comprehension questions (55.9%) required an evaluation and analysis of information which belongs to HOTS, while the rest fell into the "Remember" and the "Understand" levels (44,1%). The least represented cognitive processes were of the "Apply" and the "Create" levels (0%).

Reading comprehension tasks

The results of the analysis of 16 reading tasks based on the revised Bloom's taxonomy (Chart 2) indicate that the majority of the tasks (12 tasks) require the students to remember information. Only 1 of the tasks require students to understand, analyze, evaluate, and create respectively. The least common type of task is application. There is no task that require students to apply their knowledge. These findings suggest that the reading tasks in the textbook primarily focus on recalling information rather than on HOTS such as analysis and evaluation.

Chart 2. *Order of thinking of the reading comprehension tasks*

Discussion

This study sought to explore the order of thinking of reading comprehension questions and tasks in the Merdeka Curriculum English textbook for grade 10 Indonesian high school students. The findings show that the reading questions almost evenly required both LOTS and HOTS. However, different findings were found in the reading comprehension tasks that hardly require HOTS. These findings indicate a discrepancy between what the curriculum seeks to develop in the student and, to some extent, what the textbook offers in relation to the issue under study. The findings also echoed the prevailing phenomenon of low proportion of HOTS which were also found in English textbooks which were written within the framework of the 2013 Curriculum (Atiullah et al, 2019; Surtantini, 2019; Zainil & Rosa, 2020; Laila & Fitriyah , 2022) as well ass in the English textbook for grade 7 of junior high school which are written within the Merdeka Curriculum framework (Arlansyah et al., 2023) as discussed in the introduction of this report.

Considering the important role of HOTS questions and tasks in students' language development and understanding of text (Nourdad et al, 2018; Silalahi etl., 2021; Armala et al., 2022), the discrepancy found in the present study could potentially limits students' critical thinking abilities and hinder their ability to apply the information they learned in real-life situations. These highlight the need for education authorities, textbook writers, and educators to address the lack of HOTS in the Merdeka Curriculum English textbook. The issue is even crucial considering the results of the 2018 Program for International Student Assessment (PISA) study on reading literacy, where Indonesia ranked 73rd out of 79 participating countries and economies, with a mean score of 397 points. This score places Indonesia significantly below the average score for participating countries and economies, which was 487 points (Emilia et al, 2022).

Moreover, the findings of the current study implicate a demand for a more rigorous supervision and assessment of textbooks by relevant authorities, both in pre and post production phases, before they reach the classroom. Among the foci of the assessment that should be stressed is the extent to which the textbooks conform to the aim of and standards mandated by the curriculum. Furthermore, it is also important to train teachers in this area. This way, when deemed necessary, they can independently assess, adapt, and align their teaching materials to the curriculum.

Conclusions and Recommendations

The study's findings revealed that the majority of the reading comprehension questions and tasks of the Merdeka Curriculum English textbook for grade 10 Indonesian high school students were on memorizing and analyzing material. The distribution of cognitive processes revealed that most of the questions and tasks were at the "Remember" and "Evaluate" levels, with an insignificant number at the "Analyze," and "Create" levels. These show an asymmetricity between what the Merdeka Curriculum seeks to promote in terms of HOTS and what the textbook realizes.

Based on the results of this study, it is recommended that the development of future textbooks pay more attention to and promote higher order thinking skills and student-centered learning. Further research is needed to explore the effectiveness of the Merdeka Curriculum in promoting HOTS and student-centered learning.

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