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COGNITIVE LEVELS OF INDONESIAN JUNIOR HIGH SCHOOL ENGLISH TEXTBOOK QUESTIONS: A REVISED BLOOM'S TAXONOMY ANALYSIS

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Abstract: English textbooks play a crucial role in English Language Teaching (ELT) and cognitive development, particularly through the questions they incorporate, which is essential in shaping students' analytical and reasoning skills. Previous studies have investigated the cognitive demands of textbook questions, where Lower-Order Thinking Skills (LOTS) are more prevalent than Higher-Order Thinking Skills (HOTS). This imbalance raises concerns regarding the effectiveness of textbooks in fostering students' critical thinking abilities. While these studies have primarily focused on specific sections or types of questions, there has been limited research examining the overall cognitive levels of all questions within a single textbook.This study aims to analyze the cognitive levels of the questions in the "English for Nusantara" textbook for eighth-grade students using Revised Bloom's Taxonomy. Using a descriptive content analysis method both qualitative and quantitative approaches were used to classify and calculate the frequency of the cognitive levels. The result of the study shows that the textbook is more inclined to LOTS than HOTS. In particular, comprehension (C2) was the most frequently used cognitive process (37.28%), followed by application (C3) (28.92%), while analysis (C4) (11.50%), evaluation (C5) (3.48%), and generation (C6) (8.36%) were used least frequently. This means that students are mostly engaged in the lower order cognitive processes such as comprehension and application. The study suggests that while the textbook supports basic language skills, it provides insufficient emphasis on critical thinking. Thus, curriculum developers and teachers should incorporate more HOTS-based questions to align with the Curriculum's objectives.

Keywords**:** Revised Bloom's Taxonomy; English for Nusantara; Cognitive Levels; LOTS; HOTS

INTRODUCTION

In the Indonesian education system, curriculum development has undergone several changes to meet educational needs, including the recent implementation of the Merdeka Curriculum. This curriculum emphasizes freedom, creativity, and cognitive development through engaging learning experiences (Rahayu et al., 2022). In the learning process, textbooks play a vital role in delivering structured content and fostering students' language skills and critical thinking (Ayu, 2020). The quality of English proficiency of prospective English teachers determines the success of their future career as an educator (Basori et al., 2023). Among the essential elements of textbooks are the questions provided, which serve as tools for assessing students' comprehension and cognitive development (Asih & Linuwih, 2022).

A well-structured textbook should include questions that encourage both Lower Order Thinking Skills (LOTS) and Higher Order Thinking Skills (HOTS). The balance between these cognitive levels is crucial in ensuring that students are neither overwhelmed nor under-challenged

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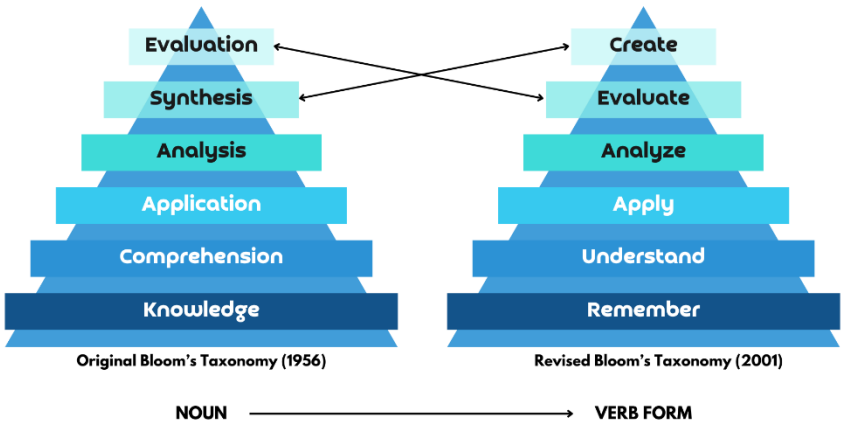
(Febriyani & Mu'arifah, 2024). Revised Bloom's Taxonomy categorizes cognitive processes into six levels: remembering, understanding, applying, analyzing, evaluating, and creating (Anderson et al., 2001). These levels distinguish LOTS (remembering, understanding, and applying) from HOTS (analyzing, evaluating, and creating), guiding educators in designing appropriate learning objectives and assessments to enhance students' cognitive abilities (Anderson et al., 2001; Bloom, 1956).



Picture 1 Differences Bloom taxonomy Original to Revised

In addition to cognitive levels, Revised Bloom's Taxonomy also integrates a knowledge dimension that consists of four categories: factual, conceptual, procedural, and metacognitive knowledge (Forehand, 2010). Factual knowledge refers to basic information such as terminology and specific details (Krathwohl, 2002), while conceptual knowledge involves understanding classifications, theories, and principles (Anderson, 2005). Procedural knowledge pertains to knowing how to perform tasks using specific methods and techniques (Krathwohl, 2002), and metacognitive knowledge involves awareness of one's own cognitive processes and learning strategies (Pintrich et al., 1993; Resnick, 1976). By integrating these dimensions with cognitive processes, educators can design more effective learning objectives and assessments that align with students' cognitive development.

The literature review serves as the basis for understanding the theoretical and empirical framework of this study. Bloom's Taxonomy, first introduced in 1956 and revised by Anderson et al. (2001), offers a structured model for classifying educational objectives. The cognitive domain highlights different thinking levels, while the knowledge dimension categorizes the types of knowledge students are expected to learn (Öztürk, 2019). This model is widely applied in curriculum development and assessment to support both lower-order and higher-order thinking skills. Prior studies, such as Hafidah (2023), have revealed that questions in junior high school

English workbooks are dominated by LOTS, especially focusing on remembering and understanding.

Similarly, Sucipto & Cahyo (2019) found a more balanced distribution in the Bright 2 textbook, while Susandari (2020) noted the need for improvement in the Class X English textbook under the 2013 Curriculum. Qasrawi & Beniabdelrahman (2020) and Assaly & Smadi (2015) also emphasized the lack of HOTS in English textbooks. Aligning textbook content with Bloom's Taxonomy is essential to improve students' critical thinking, as emphasized by Krathwohl (2002). Furthermore, Resnick (1987) and Forehand (2010) argued that the proportion of LOTS and HOTS significantly affects students' cognitive growth. While most existing research has examined textbooks under the 2013 Curriculum, little attention has been given to how the Merdeka Curriculum incorporates the Revised Bloom's Taxonomy.

Accordingly, this study aims to assess the cognitive levels of questions in the *English for Nusantara* textbook for eighth-grade students using the *Revised Bloom's Taxonomy*. Additionally, this research seeks to determine the dominant cognitive levels present in the textbook. Understanding the distribution of cognitive levels in textbook questions is crucial, as it directly influences students' thinking skills development. Therefore, this study sets out two primary objectives: first, to assess the cognitive levels of the questions in the *English for Nusantara* textbook for eighth grade, and second, to determine whether there is a dominance between LOTS and HOTS in the textbook's questions.

To achieve these objectives, the research addresses the following key questions: (1) What are the cognitive levels of the questions in the *English for Nusantara* textbook for eighth-grade students? and (2) What are the dominant cognitive levels of the questions in the textbook? Answering these questions will provide valuable understanding into the cognitive demands of the textbook and its alignment with educational goals. By quantifying the cognitive levels of textbook questions and identifying the balance between LOTS and HOTS, this research serves as a valuable resource for improving educational practices. The findings can support the refinement of instructional strategies and curriculum development, ultimately fostering better student learning outcomes and cognitive growth.

METHOD

This study employed *descriptive content analysis* method as outlined by Ulum (2016), which enables the researcher to systematically identify and interpret patterns within instructional materials. A combination of qualitative and quantitative approaches is used to gain a comprehensive understanding. The qualitative aspect refers to Krippendorff (2004), serving to

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categorize questions based on the cognitive levels of the Revised Bloom's Taxonomy. Meanwhile, the quantitative aspect follows the frequency analysis method proposed by Sudijono (2013) to calculate the proportion of each cognitive level. The research focuses on the *English for Nusantara* Grade VIII textbook. The preparatory phase includes selecting the textbook as the object of analysis, developing supporting instruments such as a list of verbs and a taxonomy table for cognitive classification (Anderson et al., 2001). Data is collected from the textbook, using the verb list to classify questions into six cognitive levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating. The taxonomy table further assists in validating and systematically classifying each question.

The main variable is the cognitive level of the textbook questions, categorized into Lower Order Thinking Skills (LOTS) for levels C1 to C3, and Higher Order Thinking Skills (HOTS) for levels C4 to C6. Data analysis is carried out in two stages. Qualitative analysis is used to classify each question based on operational verbs aligned with Bloom's Revised Taxonomy. Quantitative analysis follows to calculate the number and percentage of each level using the formula:

$$\mathbf{P} = \frac{\mathbf{Ni}}{\mathbf{N}} \times \mathbf{100}\%$$

where *P* is the percentage of questions at the *i* (cognitive level), *Ni* is the number of questions at that level, and *N* is the total number of questions analyzed. This combined approach offers a thorough understanding of the cognitive level distribution in the textbook and its role in fostering students' thinking skills.

FINDING AND DISCUSSION

The classification of each question was conducted using a verb list from Revised Bloom's Taxonomy and systematically categorized based on cognitive levels. The analysis involved calculating the frequencies and percentages of questions related to all levels of the cognitive domain and four categories of knowledge dimensions, which were then summarized in Table 1 and Table 2. Results showed that there is a variation in the use of cognitive domain levels and knowledge dimensions involved in answering the textbook questions.

Table 1. The frequency and percentage of the six cognitive levels in the Revised Bloom's Taxonomy found in the questions of the "English for Nusantara" textbook for eighth-grade students.

Cognitive Levels	Frequency	Precentage (%)
C1 (Remembering)	30	10.45%

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C2 (Understanding)	107	37.28%
C3 (Applying)	83	28.92%
C4 (Analyzing)	33	11.50%
C5 (Evaluating)	10	3.48%
C6 (Creating)	24	8.36%
TOTAL	**287**	**100%**

Table 1 shows that Understanding (C2) is the most dominant cognitive level in the textbook (37.28%, N=107), followed by Applying (C3) (28.92%, N=83) and Remembering (C1) (10.45%, N=30), indicating a strong focus on Lower-Order Thinking Skills (LOTS). In contrast, Higher-Order Thinking Skills (HOTS) are less represented, with Analyzing (C4) at 11.50% (N=33), Creating (C6) at 8.36% (N=24), and Evaluating (C5) at only 3.48% (N=10). This imbalance suggests that students are more frequently asked to comprehend and apply concepts than to critically analyze, evaluate, or create new ideas. The minimal presence of C5 and C6 indicates limited opportunities for developing evaluative and creative thinking, which are essential for problem-solving and higher-level reasoning. Table 2 further supports this concern by analyzing the interaction between cognitive processes and knowledge dimensions, highlighting the need for more varied and cognitively demanding questions. Overall, the distribution raises questions about the textbook's effectiveness in promoting comprehensive cognitive development. As presented in Table 2, analyzing these dimensions can provide further insight into the extent to which the textbook supports a comprehensive cognitive development framework.

Table 2. The frequency and percentage of the four knowledge dimensions in the Revised Bloom's Taxonomy found in the questions of the "English for Nusantara" textbook for eighth-grade students.

Cognitive Levels	Frequency	Precentage (%)
Factual Knowledge	39	13.59%
Conceptual Knowledge	171	59.58%
Procedural Knowledge	68	23.69%
Metacognitive Knowledge	9	3.14%
Total	**287**	**100%**

Table 2 shows that Conceptual Knowledge is the most dominant category in the textbook questions, making up 59.58% (N=171) of the total. Procedural Knowledge follows at 23.69%

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(N=68), while Factual Knowledge accounts for 13.59% (N=39), and Metacognitive Knowledge is the least represented at only 3.14% (N=9). The strong emphasis on Conceptual Knowledge indicates that the textbook prioritizes understanding interrelated concepts over simple factual recall, aligning with the focus on Understanding (C2) in Table 1. Meanwhile, the inclusion of Procedural Knowledge suggests that students are given opportunities to apply structured methods, though the lack of Metacognitive Knowledge may hinder their ability to engage in self regulation and critical thinking. To gain deeper understanding into the distribution of cognitive levels, a chapter wise analysis was conducted, as presented in Table 3.

Table 3. The frequency and percentage of the six cognitive levels in the Revised Bloom's Taxonomy as reflected in the questions of each chapter in the English for Nusantara textbook for eighth-grade students.

Chapter	Remembering		Understanding		Applying		Analyzing		Evaluating		Creating	
	N	%	N	%	N	%	N	%	N	%	N	%
1	8	13.56	27	45.76	18	30.51	2	3.39	0	0	4	6.78
2	8	16	15	30	20	40	5	10	0	0	2	4
3	4	8	12	24	24	48	3	6	4	8	3	6
4	2	3.85	20	32.69	12	23.08	8	15.38	3	5.77	10	19.23
5	4	6.90	33	56.90	13	22.41	3	5.17	2	3.45	3	5.17
Progress check	4	28.57	4	21.43	2	14.29	2	14.29	1	7.14	2	14.29

Table 3 presents the distribution of cognitive levels across the chapters, highlighting a strong emphasis on Lower-Order Thinking Skills (LOTS). Chapter 1 is dominated by Understanding (C2) at 45.76% and Applying (C3) at 30.51%, with minimal Analyzing (C4) and no Evaluating (C5). Chapter 2 follows a similar pattern but includes a slightly higher portion of Analyzing (C4) at 10.64%. Chapter 3 shows a modest increase in complexity with Evaluating (C5) at 5.77% and Creating (C6) at 4.26%. Chapter 4 provides the most balanced distribution, with Creating (C6) at 19.23%, Analyzing (C4) at 15.38%, and moderate Evaluating (C5) presence. However, Chapter 5 reverts to a heavy focus on Understanding (C2) at 56.90%, with little representation of higher-order skills.

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The Progress Check sections also reveal a preference for LOTS, particularly Remembering (C1) at 28.57% and Understanding (C2) at 21.43%. Applying (C3) and Analyzing (C4) each appear at 14.29%, while higher-order skills are scarcely addressed. This pattern suggests that the textbook prioritizes comprehension and recall over critical and creative thinking. When classified into LOTS and HOTS, the overall distribution shows LOTS dominating with 75.6%, and HOTS accounting for only 24.4% of all questions. These figures were determined through categorization based on Revised Bloom's Taxonomy and calculated frequencies presented in Table 4. The findings emphasize the need for more HOTS-based questions to support deeper student engagement and cognitive growth. The frequency and percentage distribution of each cognitive level are detailed in Table 4, offering a deeper examination of the cognitive demands placed on students throughout the textbook.

Table 4. Percentage and frequency of lower and higher levels of cognitive processes involved in the questions in the "English for Nusantara" textbook for eighth-grade students.

	Lower Order Thinking Skill (LOTS)			Higher Order Thinking Skills (HOTS)		
Cognitive Levels	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
Frequency	30	107	83	33	10	24
Total	**220 (76.66%)**			**67 (23.34%)**		

Table 3 shows that out of 287 questions in the *English for Nusantara* textbook, 220 (76.66%) belong to LOTS, while only 67 (23.34%) fall under HOTS, indicating a strong emphasis on lower-order cognitive processes. Among LOTS, Understanding (C2) is the most frequent (37.28%), followed by Applying (C3) (28.92%) and Remembering (C1) (10.45%), highlighting a focus on comprehension and practical application. Conversely, HOTS levels are underrepresented, with Analyzing (C4) at 11.50%, Creating (C6) at 8.36%, and Evaluating (C5) being the least frequent at 3.48%, showing limited opportunities for critical thinking and creative problem solving. The predominance of Understanding (C2) and Applying (C3) suggests the textbook prioritizes knowledge acquisition over analytical or create, while the minimal inclusion of Evaluating (C5) and Creating (C6) reflects a stronger focus on lower order thinking skills questions rather than fostering higher order thinking skills.

The analysis of the English for Nusantara textbook reveals a strong emphasis on Lower-Order Thinking Skills (LOTS), particularly at the levels of Understanding and Applying. This pattern suggests that while the textbook supports students in grasping and using basic concepts, it offers limited opportunities for engaging in more complex cognitive tasks such as analyzing,

evaluating, and creating. Such an imbalance may hinder the development of students' critical and creative thinking, which are vital in modern educational contexts. According to Anderson et al. (2001), a balanced distribution of LOTS and Higher-Order Thinking Skills (HOTS) is essential to support comprehensive cognitive development. In this study, LOTS accounts with percentage 76,66% of all textbook questions, while HOTS makes up only 23,34%. This disproportion indicates that students are far more frequently prompted to remember, understand, and apply, rather than to analyze, evaluate, or create.

Additionally, the textbook's limited attention to Metacognitive Knowledge restricts students' chances to reflect on their own learning strategies. Metacognitive awareness plays a crucial role in helping learners become more self-directed and adaptable in problem-solving situations. Without it, students may struggle to monitor and evaluate their learning effectively. In the context of the Merdeka Curriculum, which emphasizes learner autonomy, creativity, and critical thinking (Rahayu et al., 2022), the findings raise concern. Although the textbook aligns with some aspects of the curriculum, the lack of HOTS-oriented questions and metacognitive engagement may hinder its ability to fully realize the curriculum's goals. Future textbook revisions should consider a more deliberate inclusion of higher-order and reflective tasks to better prepare students for real-world challenges.

CONCLUSION

This study investigated the cognitive levels of questions in the *English for Nusantara* textbook for eighth-grade students using Revised Bloom's Taxonomy. The findings revealed that the textbook predominantly features Lower-Order Thinking Skills (LOTS), particularly Understanding (C2) (37.28%) and Applying (C3) (28.92%), while Higher-Order Thinking Skills (HOTS), such as Analyzing (C4) (11.50%), Evaluating (C5) (3.48%), and Creating (C6) (8.36%), are underrepresented. This imbalance indicates that while students are encouraged to understand and apply knowledge, they are not sufficiently challenged to analyze, evaluate, or create, which are essential for critical thinking and problem-solving. Additionally, the textbook primarily promotes Conceptual Knowledge (59.58%) and Procedural Knowledge (23.69%), while Metacognitive Knowledge is the least emphasized at 3.14%, limiting students' ability to develop independent learning strategies.

The results suggest that the textbook may not fully align with the *Merdeka* Curriculum, which emphasizes higher-order thinking and creativity. Educators should consider supplementing the material with additional activities that encourage deeper cognitive engagement, such as analytical discussions and problem-solving tasks. Textbook developers should also revise the content to include more HOTS-based questions, ensuring a better balance between LOTS and HOTS to

foster students' cognitive development. A textbook that integrates these elements more effectively will better equip students with the skills needed for critical thinking and real-world problem-solving.

Despite its contributions, this study has certain constraints. The analysis is limited to a single grade level, specifically eighth grade, and examines only one textbook, which affects the generalizability of the findings. Additionally, it focuses on categorizing cognitive levels without evaluating their direct impact on students' learning outcomes. Future research should explore multiple textbooks across various educational levels and investigate how students engage with LOTS and HOTS-oriented questions in the classroom. Such knowledge will contribute to improving textbook design and instructional strategies to enhance both foundational knowledge and higher-order cognitive skills in EFL learners.

REFERENCES

Anderson, L. W. (2005). Educational evaluation objectives, evaluation, and the improvement of education. *Studies in Educational Evaluation*, *31*, 102–113. https://doi.org/10.1016/j.stueduc.2005.05,004

Anderson, L. W., Krathwohl Peter W Airasian, D. R., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., Raths, J., & Wittrock, M. C. (2001). Taxonomy for assessing a revision of Bloom's taxonomy of educational objectives.

Assaly, I. R., & Smadi, O. M. (2015). Using Bloom's taxonomy to evaluate the cognitive levels of master class textbook's questions. *English Language Teaching*, *8*(5), 100–110. https://doi.org/10.5539/elt.v8n5p100

Basori, B., Mubarok, H., Rohmana, W. I. M., Bisriyah, M., Jayanti, S. D., & Maharany, E. R. (2023). An English placement test at three different periods: the implementation and the test administrators' views. *Journal of English Teaching and Learning Issues*, *6*(2), 135. https://doi.org/10.21043/jetli.v6i2.19100

Bloom. (1956). *I taxonomy of educational objectives the classification of educational goals handbook1 cognitive domain longmans*.

Febriyani, H., & Mu'arifah, S. (2024). Muatan soal LOTS dan HOTS kompetensi sastra buku teks bahasa Indonesia kelas VII terbitan erlangga (content of LOTS and HOTS questions literary competency Indonesian class VII textbook published erlangga).

Fitri Asih, N., & Linuwih, S. (2022). Analysis of four-tier diagnostic test on the topic of temperature and heat in high school. *Phys. Comm*, *6*(1), 1–6. http://journal.unnes.ac.id/nju/index.php/pc

Forehand. (2010). Emerging perspective on learning, teaching and technology. *The University of Georgia*.

Hafidah. (2023). Analysis of reading questions in English workbooks for SMP/MTs by using revised bloom taxonomy *(a descriptive qualitative study)*.

Krathwohl, D. R. (2002). *A Revision of Bloom's Taxonomy: An Overview*.

Krippendorff, Klaus. (2004). *Content analysis : an introduction to its methodology*. Sage.

Mutiara Ayu. (2020). Evaluation cultural content on English textbook used by EFL students in Indonesia. *JET (Journal of English Teaching)*, *6*(3), 183–192. https://doi.org/10.33541/jet.v6i3.1925

Öztürk, E., & Thesis, M. A. (2019). An evaluation of secondary school 9th grade English program and 9th grade coursebook activities from the perspective of Bloom's revised taxonomy.

Pintrich, P. R., Marx, R. W., & Boyle, R. A. (1993). Beyond cold conceptual change: the role of motivational beliefs and classroom contextual factors in the process of conceptual change. *Review of Educational Research*, *63*(2), 167–199. https://doi.org/10.3102/00346543063002167

Qasrawi, R., & Beniabdelrahman, A. (2020). The higher and lower-order thinking skills (hots and lots) in unlock English textbooks (1st and 2nd editions) based on Bloom's taxonomy: an analysis study. In *International Online Journal of Education and Teaching (IOJET)* (Vol. 7, Issue 3).

Rahayu, R., Rosita, R., Rahayuningsih, Y. S., Hernawan, A. H., & Prihantini, P. (2022). Implementasi kurikulum merdeka belajar di sekolah penggerak. *Jurnal Basicedu*, *6*(4), 6313–6319. https://doi.org/10.31004/basicedu.v6i4.3237

Resnick, L. B. (1976). The nature of intelligence (First Edition). *Library of Congress Cataloging*.

Resnick, L. B. (1987). The 1987 presidential address learning in school and out. http://er.aera.net

Sucipto, S., & Cahyo, S. D. (2019). A content analysis of the reading activities in "bright 2" an English textbook for junior high school students. *English Language Teaching Educational Journal (ELTEJ)*, *2*(1), 39–46.

Sudijono, Anas. (2013). Pengantar evaluasi pendidikan. *Radja Grafindo Persada*.

Susandari, W. F. A. (2020). Evaluation of exercises compatibility between revised Bloom's taxonomy and 2013 curriculum reflected in English textbook. http://journal.unnes.ac.id/sju/index.php/eej

Ulum, Ö. G. (2016). A descriptive content analysis of the extent of Bloom's taxonomy in the reading comprehension questions of the course book Q: Skills for success 4 reading and writing. *Qualitative Report*, *21*(9), 1674–1683. https://doi.org/10.46743/2160-3715/2016.2172