Cognitive Level Distribution in Bupena English Textbook: A SOLO Taxonomy Analysis

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Abstract: This study investigates the distribution of lower-order and higher-order thinking skills (LOTS–HOTS) in the evaluation questions of the English Bupena textbook by integrating Bloom's Revised Taxonomy and the SOLO Taxonomy as a dual analytical framework. It aims to examine the extent to which textbook evaluation tasks support students' critical and higher-order thinking skills in line with curriculum demands. A total of 81 evaluation items were analyzed using qualitative descriptive content analysis supported by quantitative frequency calculations. Each item was systematically coded according to Bloom's cognitive dimensions and SOLO structural complexity, with reliability ensured through inter-coder agreement. The results show that 80.25% of the questions are LOTS, while only 19.75% are HOTS. Most items fall at the unistructural and multistructural levels, indicating limited opportunities for relational and extended abstract reasoning. These findings suggest that the textbook predominantly promotes surface-level learning rather than deep cognitive Engagement. The study highlights the value of multidimensional cognitive frameworks for evaluating the quality of EFL textbook assessment.

Abstrak: Penelitian ini mengkaji distribusi keterampilan berpikir tingkat rendah dan tingkat tinggi (LOTS–HOTS) pada soal evaluasi buku teks English Bupena dengan mengintegrasikan Taksonomi Bloom Revisi dan Taksonomi SOLO sebagai kerangka analisis ganda. Penelitian ini bertujuan untuk menelaah sejauh mana tugas evaluasi buku teks mendukung pengembangan kemampuan berpikir kritis dan tingkat tinggi siswa sesuai tuntutan kurikulum. Sebanyak 81 butir soal dianalisis menggunakan analisis isi deskriptif kualitatif yang didukung oleh perhitungan frekuensi kuantitatif. Setiap butir dikodekan secara sistematis berdasarkan dimensi kognitif Bloom dan tingkat kompleksitas struktural SOLO, dengan reliabilitas dijamin melalui kesepakatan antarkoder. Hasil penelitian menunjukkan bahwa 80,25% soal termasuk LOTS, sedangkan hanya 19,75% yang merepresentasikan HOTS. Sebagian besar butir berada pada level unistruktural dan multistruktural, sehingga menunjukkan keterbatasan peluang untuk penalaran relasional dan abstrak diperluas. Temuan ini mengindikasikan bahwa buku teks lebih banyak mendorong pembelajaran permukaan daripada keterlibatan kognitif yang mendalam. Penelitian ini menegaskan pentingnya penggunaan kerangka kognitif multidimensional untuk menilai kualitas tugas evaluasi dalam buku teks EFL.

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A. Introduction

The development of critical thinking and higher-order thinking skills (HOTS) has become a central demand of 21st-century education and a major focus of both global and national educational policies. In the context of English as a Foreign Language (EFL) learning, critical thinking plays a crucial role in enabling students to comprehend texts, analyze meaning, evaluate information, and construct knowledge independently. However, empirical evidence suggests that assessment practices in EFL learning have not fully supported the development of higher-order thinking skills. Textbooks, which function as primary instructional resources in many classrooms, often present evaluation questions that emphasize lower-order thinking skills (LOTS), particularly remembering and understanding, thereby limiting students' opportunities to develop analytical, evaluative, and creative thinking abilities (Rinjaya & Halimi, 2022; Maryamah et al., 2024; Abkary & Purnawarman, 2020). Similar patterns have also been reported in international contexts, indicating that the dominance of LOTS in EFL textbooks represents a broader challenge in language education (Dallasheh, 2024; Hong, 2024).

This issue becomes increasingly significant in the Indonesian educational context following the implementation of the Merdeka Curriculum, which emphasizes deep learning, learner autonomy, and the development of higher-order thinking skills as key competencies. Several recent studies examining EFL textbooks developed under the Merdeka Curriculum indicate that although elements of HOTS have begun to appear, their distribution remains uneven and inconsistent across textbook units (Widiastuti & Mbato, 2025; Husni & Ginting, 2023). Other studies analyzing senior high school EFL textbooks similarly report the predominance of LOTS and the limited presence of questions requiring evaluation and creation (Marlino, 2025; Dakoranis & Wahyuni, 2025; Islam et al., 2021; Alsuwat, 2025). These findings highlight a persistent misalignment between curriculum objectives that emphasize critical thinking and the cognitive demands embedded in textbook assessment tasks.

Addressing this issue requires a more comprehensive analytical approach to textbook evaluation—one that not only identifies cognitive processes but also examines the depth and structural quality of students' understanding reflected in assessment questions. Bloom's taxonomy has been widely used to classify cognitive levels and to map the distribution of LOTS and HOTS in educational assessments. Nevertheless, several scholars argue that relying solely on Bloom's taxonomy may provide a limited perspective, as it primarily focuses on the categorization of cognitive processes rather than the structural complexity of learning outcomes (Balatska & Vyslobodska, 2025). To overcome this limitation, the SOLO (Structure of Observed Learning Outcomes) taxonomy offers an additional analytical dimension by mapping the hierarchical quality of students' understanding, ranging from prestructural to extended abstract levels, and distinguishing between surface and deep learning (Köksal et al., 2023).

Despite the growing number of studies investigating the distribution of LOTS and HOTS in EFL textbooks, most previous research has relied on quantitative frequency

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analysis based solely on Bloom's taxonomy. Consequently, the hierarchical structure of understanding required by textbook assessment questions has received relatively limited attention. Research integrating Bloom's taxonomy with the SOLO taxonomy in the analysis of EFL textbooks, particularly within the Indonesian context, remains scarce. This gap highlights the need for a multidimensional analytical framework that can simultaneously examine both the Level of cognitive processes and the depth of conceptual understanding embedded in textbook tasks.

Based on this gap, the novelty of the present study lies in the application of a dual-taxonomy framework that integrates LOTS–HOTS analysis based on Bloom's taxonomy with structural cognitive mapping using the SOLO taxonomy. This integrated approach enables a more comprehensive evaluation of textbook assessment questions by examining not only the dominance of cognitive levels but also the depth and coherence of the cognitive structures required by the tasks. Through this multidimensional perspective, the study provides a deeper understanding of how textbook questions may encourage either surface learning or deeper cognitive Engagement.

In line with the identified research gap and the proposed analytical framework, this study aims to examine the cognitive quality of evaluation questions in the English Bupena textbook. Specifically, the study addresses three research questions: (1) which cognitive levels (LOTS or HOTS) dominate the evaluation questions in the English Bupena textbook, (2) how the levels of the SOLO taxonomy are distributed across the evaluation questions, and (3) to what extent the balance between LOTS and HOTS is reflected in the hierarchical structure of SOLO levels. By addressing these questions, this study contributes both theoretically and practically to the evaluation of EFL textbooks and to the development of assessment practices that support critical thinking and deep learning.

B. Method

This study employed a descriptive qualitative research design supported by simple quantitative analysis to map the distribution of Lower-Order Thinking Skills (LOTS) and Higher-Order Thinking Skills (HOTS) in textbook evaluation questions using Bloom's Revised Taxonomy and the SOLO (Structure of Observed Learning Outcomes) Taxonomy. Qualitative content analysis was selected because it enables systematic examination and categorization of educational documents based on predefined cognitive frameworks, allowing researchers to identify patterns of cognitive demand without hypothesis testing (Boral et al., 2025). This approach is widely used in textbooks and assessment evaluation studies to describe cognitive depth and alignment with curriculum goals (Netere et al., 2024).

The data source consisted of all multiple-choice evaluation questions from the English Bupena Book for SMP/MTs Grade VII, published in 2023 by Penerbit Erlangga and developed under the Kurikulum Merdeka framework. A total of 1 chapter beginning (chapter 0), 4 chapters, and 1 mid-semester evaluation section were analyzed. The dataset consists of primary document-based data, and no human participants were involved,

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therefore, ethical clearance was not required. The overall research procedure followed the flow below:

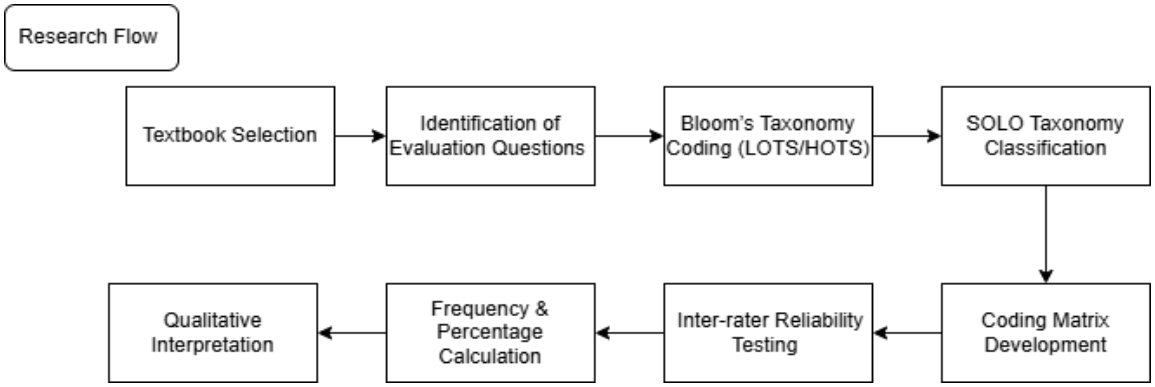

Figure 1. Research Flow

This structured analytical flow aligns with recent textbook content analysis methodologies that emphasize systematic coding procedures, transparent classification criteria, and replicable analytical steps to ensure research validity and reliability (Boral et al., 2025). Through a clearly defined sequence of data identification, coding, classification, verification, and interpretation, the study ensures that cognitive-level evaluations of textbook questions are conducted systematically and methodologically sound. This approach enables the analysis of both the distribution of cognitive categories and the patterns of cognitive complexity embedded in assessment tasks.

The primary research instrument was a coding rubric developed based on Bloom's Revised Taxonomy and the SOLO (Structure of Observed Learning Outcomes) taxonomy. Bloom's taxonomy was used to classify questions into cognitive process levels ranging from remembering to creating, which were then grouped into lower-order thinking skills (LOTS) and higher-order thinking skills (HOTS). Meanwhile, the SOLO taxonomy was applied to identify the structural complexity of students' understanding from prestructural to extended abstract levels. The integration of these frameworks enables a multidimensional classification that captures both cognitive processes and the depth of conceptual understanding required by each assessment item. The operational indicators used in this classification are presented in Tables 1 and 2.

Table 1. Indicators of Bloom's Revised Taxonomy (LOTS–HOTS)

Cognitive Level	Category	Indicator Example
C1 – Remember	LOTS	Recall vocabulary or facts
C2 – Understand	LOTS	Identify main ideas
C3 – Apply	LOTS	Use grammar rules in context
C4 – Analyze	HOTS	Differentiate text structures
C5 – Evaluate	HOTS	Judge appropriateness of responses
C6 – Create	HOTS	Construct new sentences/dialogues

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Bloom-based classification of assessment items is widely recognized as a validated approach for identifying the Level of cognitive demand embedded in educational materials (Ravand et al., 2025). By categorizing tasks according to cognitive processes such as remembering, understanding, applying, analyzing, evaluating, and creating, this framework enables researchers to systematically examine whether assessment questions primarily promote lower-order or higher-order thinking skills. Such classification is particularly important in textbook evaluation studies, as it helps reveal the extent to which instructional materials support students' critical and analytical thinking. In this study, Bloom's Revised Taxonomy served as the initial framework for categorizing the cognitive processes required by each evaluation item. The operational indicators used to guide this classification are presented in **Table 2**.

Table 2. SOLO Taxonomy Classification Indicators

SOLO Level	**Indicator Description**
Prestructural	Irrelevant or incorrect response
Unistructural	Focus on one relevant aspect
Multistructural	Several relevant aspects without integration
Relational	Integrated understanding of concepts
Extended Abstract	Generalization to new contexts

The SOLO taxonomy effectively captures the depth and integration of understanding and complements Bloom's taxonomy in analyzing cognitive complexity in educational assessments (Fernandez & Guzon, 2025). In this study, evaluation questions were coded using a dual-coding system: first, items were classified into lower-order thinking skills (LOTS) or higher-order thinking skills (HOTS) according to Bloom's taxonomy, and second, they were categorized by SOLO levels to determine the structural complexity of students' understanding. A coding matrix was developed in Microsoft Excel following structured content analysis procedures commonly used in textbook evaluation studies (Netere et al., 2024). To ensure reliability, investigator triangulation was conducted with two independent raters with expertise in English education, yielding a Cohen's Kappa value of 0.82, indicating strong agreement and reliable classification (Boral et al., 2025; Fernandez & Guzon, 2025). Data analysis combined qualitative coding with quantitative calculations of frequency and percentage to identify the distribution of LOTS–HOTS and SOLO levels across chapters, enabling a systematic and replicable mapping of cognitive structures in EFL textbook assessment tasks.

C. Result

A total of 81 multiple-choice evaluation questions from the *English Bupena Book for Grade VII* were analyzed using a dual analytical framework combining Revised Bloom's Taxonomy (LOTS–HOTS) and the SOLO Taxonomy. The analysis aimed to identify the

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distribution of cognitive levels in terms of both frequency and structural depth of learning outcomes.

The results indicate that 65 items (80.25%) were classified as Lower-Order Thinking Skills (LOTS), while only 16 items (19.75%) met the criteria for Higher-Order Thinking Skills (HOTS). These findings demonstrate a clear imbalance in the cognitive demand of the evaluation questions, with a strong emphasis on lower-level cognitive processes. Such distributions are commonly reported in recent large-scale analyses of assessment instruments using Bloom-based cognitive frameworks (Toosi et al., 2021; Chanaa & Faddouli, 2024).

Table 3. Distribution of LOTS and HOTS Questions

Cognitive Category	Frequency (	Precentage (%)
LOTS	65	80.25
HOTS	16	19.75
Total	81	100.00

This classification follows established operational definitions of LOTS and HOTS in cognitive assessment research (Anderson & Krathwohl, 2001).

Table 4. Distribution of Questions by Bloom's Cognitive Levels

Bloom Level	Category	Frequency (n)	Percentage (%)
C1 – Remember	LOTS	38	46.91
C2 – Understand	LOTS	27	33.33
C3 – Apply	LOTS	0	0.00
C4 – Analyze	HOTS	12	14.81
C5 – Evaluate	HOTS	2	2.47
C6 – Create	HOTS	2	2.47
Total		81	100.0

The results show that remembering and understanding dominate the cognitive profile of the evaluation questions. Bloom's Revised Taxonomy remains a robust framework for mapping such distributions in assessment-oriented studies (Elmas et al., 2020; Süzük, 2023).

Table 5. Distribution of Questions by SOLO Levels

SOLO Level	Frequency (n)	Percentage (%)
Prestructural	0	0.00
Unistructural	46	56.79
Multistructural	19	23.46
Relational	13	16.05
Extended Abstract	3	3.70
Total	81	100.0

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The predominance of unistructural and multistructural levels indicates that most questions primarily require students to recognize or recall one or several pieces of information without requiring deeper conceptual integration or relational understanding. Such cognitive demands generally reflect surface-level learning processes, where students focus on identifying isolated facts rather than synthesizing ideas or constructing broader conceptual connections. The SOLO taxonomy has therefore been widely applied in educational research to examine the structural complexity of assessment tasks and to distinguish between surface and deep learning outcomes (Decker et al., 2019; Purba et al., 2025).

Table 4. Distribution of LOTS and HOTS by Chapter

Chapter	Main Focus	LOTS (n)	HOTS (n)	Total
0	Numbers & basic numeracy vocabulary	10	0	10
1	Greetings, pronouns, and basic reading comprehension	11	4	15
2	Functional & procedural texts, descriptive texts	10	5	15
Mid-Semester Test	Mixed skills (grammar & reading comprehension)	13	2	15
3	Grammar, vocabulary, descriptive reading	10	3	13
4	Descriptive texts & inferential reading	11	2	13
Total		65	16	81

Chapter-level analysis illustrates variability in cognitive demand across instructional units, a pattern frequently observed in curriculum-aligned textbooks (Anderson & Krathwohl, 2001).

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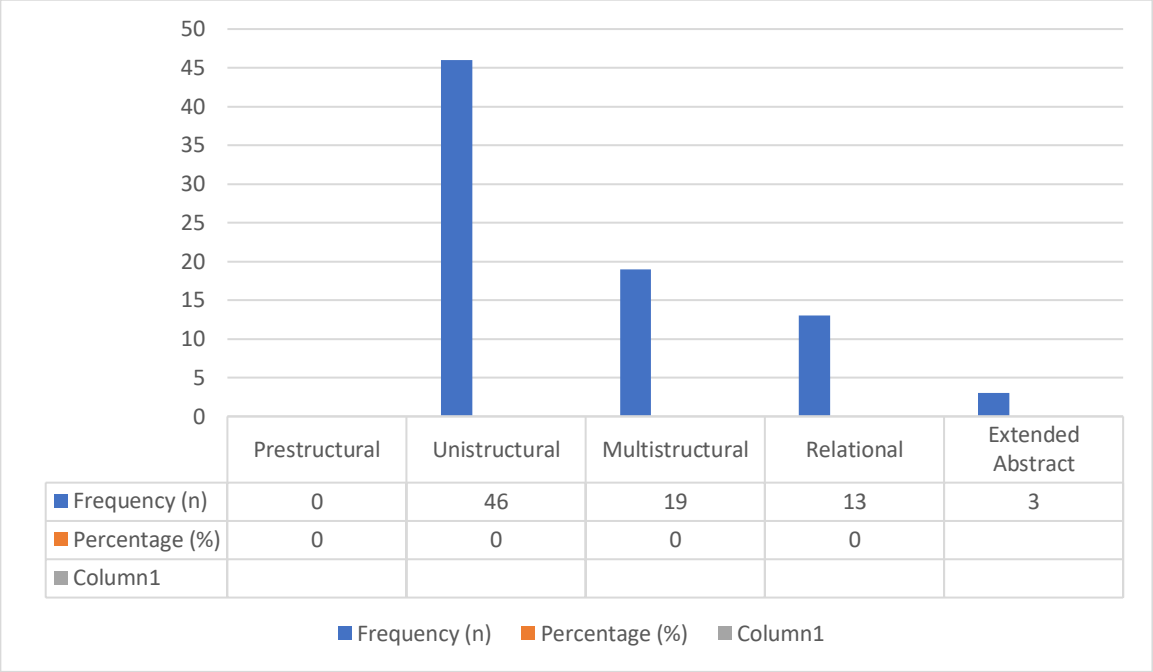

Figure 2. Bar Chart of LOTS and HOTS Distribution

The bar chart illustrates the proportional dominance of lower-order thinking skills (80.25%) over higher-order thinking skills (19.75%) across all evaluation questions. Such a graphical representation helps clarify the distribution of cognitive levels and enhances the readability of assessment analysis results. Visualizing cognitive distributions through charts or graphs is widely recommended in educational assessment studies to facilitate clearer interpretation and communication of findings (Ravand et al., 2025; Chanaa & Faddouli, 2024).

D. Discussion

The findings of this study indicate that the evaluation questions in the English Bupena textbook for Grade VII are strongly dominated by Lower-Order Thinking Skills (LOTS), accounting for 80.25% of the total items. In comparison, Higher-Order Thinking Skills (HOTS) represent only 19.75%. This distribution suggests that the assessment tasks primarily emphasize basic cognitive processes such as remembering, understanding, and applying, rather than more complex processes including analysis, evaluation, and creation. Such a pattern reflects a broader tendency in secondary-level assessment where multiple-choice formats are frequently designed to measure factual and procedural knowledge due to their practicality and ease of standardization (Toosi et al., 2021; Anderson & Krathwohl, 2001). When compared with textbooks developed under competency-based or concept-based assessment frameworks, the proportion of HOTS in the Bupena textbook appears relatively limited. Cross-national curriculum studies show that when higher-order thinking is explicitly embedded in learning objectives, assessment distributions tend to become more cognitively balanced (Elmas et al., 2020).

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Further analysis using the SOLO taxonomy reveals that most questions are concentrated at the prestructural, unistructural, and multistructural levels, which generally represent surface-level learning processes. In these levels, students are mainly required to identify isolated pieces of information without integrating concepts or constructing broader meaning. In contrast, the relational and extended abstract levels, which represent deeper conceptual integration, reasoning, and knowledge transfer, appear only minimally. This finding indicates that although students may recognize or accumulate information, opportunities to synthesize or transform knowledge remain limited. Empirical research suggests that assessment items not designed around authentic or contextualized problems often remain at the multistructural Level of cognitive complexity (Fernandez & Guzon, 2025). Conversely, assessments incorporating case-based or problem-based learning approaches tend to produce a higher proportion of relational and extended abstract responses (Karakousoglou et al., 2022; Paralikar et al., 2022).

Several contextual factors may explain the dominance of LOTS in the textbook. First, the target age group of Grade VII students encourages textbook authors to prioritize the development of foundational vocabulary and grammatical structures. Studies on cognitive development and assessment indicate that early secondary education often focuses on linguistic foundations before systematically introducing more complex cognitive processes (Larsen et al., 2022). Second, the grammar-oriented syllabus structure strongly influences assessment design. Structurally focused curricula often generate questions with single correct answers, which naturally align more with LOTS than HOTS (Chanaa & Faddouli, 2024). Third, practical considerations related to textbook usability and large-scale adoption may also contribute to this pattern. Textbooks designed for broad educational contexts frequently avoid cognitively demanding tasks due to concerns about teacher readiness, student difficulty, and assessment reliability (Netere et al., 2024).

At the classroom level, the dominance of LOTS may have important pedagogical implications. When students are predominantly exposed to factual or structural questions, their opportunities to engage in critical literacy practices become limited. Students may become accustomed to identifying correct answers rather than interpreting meanings, evaluating perspectives, or connecting texts with broader social contexts. Research on critical literacy highlights that sustained Engagement with HOTS-oriented tasks is essential for developing reflective, analytical, and metacognitive thinking (Valcke et al., 2009). Moreover, LOTS-dominated assessment may reduce opportunities for meaningful classroom discourse, as instructional interactions tend to focus on correctness rather than reasoning or interpretation. Educational intervention studies demonstrate that increasing the proportion of HOTS-based questions can significantly deepen classroom discussion and improve the quality of student interaction (Dewi et al., 2024).

Compared with recent studies published over the last five years, this study's findings show both similarities and contextual variations. A study examining vocational English examinations reported LOTS dominance exceeding 85%, largely influenced by standardized testing orientations (Jamaly & AlJubouri, 2024; Belarbi & Bensafa, 2020). Similarly, machine-

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learning-based analyses of global online assessments reveal that HOTS questions remain underrepresented in many educational contexts (Chanaa & Faddouli, 2024). However, research adopting task-based or problem-based learning approaches demonstrates considerably higher proportions of HOTS questions, indicating that pedagogical design plays a crucial role in shaping cognitive demand (Süzük, 2023). In the Indonesian EFL context, intervention studies also suggest that teachers can mitigate textbook limitations by mediating and redesigning assessment tasks during classroom instruction (Dewi et al., 2024). Furthermore, global evaluations of educator-generated assessment items reveal that even experienced educators often struggle to design HOTS-oriented questions without explicit analytical frameworks (Netere et al., 2024). Collectively, these findings suggest that the results of the present study reflect a broader global pattern influenced by curriculum orientation, textbook design philosophy, and prevailing assessment practices rather than representing an isolated phenomenon.

From a theoretical perspective, this study reinforces the conceptual relationship between Bloom's Taxonomy, which categorizes types of cognitive processes, and the SOLO taxonomy, which explains the structural depth of learning outcomes. The integration of these frameworks enables a more comprehensive understanding of the cognitive demands of educational assessments. Methodologically, the dual-taxonomy approach provides a multidimensional diagnostic tool for evaluating textbook quality and assessment design. Such an approach aligns with contemporary directions in educational evaluation research that emphasize holistic and multidimensional cognitive analysis (Larsen et al., 2022; Fernandez & Guzon, 2025; Rustiyani et al., 2021).

E. Implication

The findings of this study generate important implications at the theoretical, practical, and policy levels, particularly regarding the integration of cognitive taxonomies and classroom assessment practices. Theoretically, the study supports integrating Bloom's Revised Taxonomy and the SOLO Taxonomy as a comprehensive framework for evaluating textbook-based assessment. Bloom's taxonomy identifies the cognitive processes elicited by questions, while the SOLO taxonomy describes the structural depth of students' understanding. The alignment between LOTS categories and lower SOLO levels, as well as between HOTS categories and higher SOLO levels, demonstrates that combining these frameworks provides a more comprehensive mapping of cognitive demand in assessment tasks. Practically, the dominance of LOTS suggests that teachers need to actively redesign textbook-based questions by transforming factual prompts into inferential or evaluative tasks, encouraging analytical discussion, and incorporating project-based or reflective activities to foster higher-order thinking.

At the policy level, the findings highlight the need for clearer national standards regulating the cognitive quality of textbook evaluation questions. Although current curricula emphasize critical thinking and 21st-century competencies, textbook evaluation systems often lack explicit indicators related to higher-order thinking and deep learning

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structures. Therefore, policymakers and textbook evaluation boards should establish minimum proportions of higher-order thinking questions, require alignment with cognitive taxonomy indicators, and involve assessment experts in textbook review processes. Overall, the development of higher-order thinking skills depends on the alignment between theoretical frameworks, classroom assessment practices, and national education policies.

F. Limitation and Suggestion for Further Research

Despite its contributions, this study has several limitations that should be acknowledged to contextualize the findings and guide future research. First, the analysis focused on a single English textbook for Grade VII, limiting the generalizability of the results across grade levels, textbook series, or curricular contexts. Textbooks designed for higher grades may exhibit different cognitive distributions due to increased linguistic complexity and cognitive demands; therefore, the findings should not be generalized beyond the analyzed grade level. Second, the study relied on a manually developed classification instrument based on Bloom's Revised Taxonomy and the SOLO Taxonomy. Although coding guidelines and expert triangulation were implemented, the categorization process still involved subjective judgment, potentially introducing classification bias. Third, the analysis was limited to multiple-choice questions and did not include other assessment formats such as essay questions, performance-based tasks, or project assignments. Because multiple-choice items tend to emphasize recognition and selection processes, their dominance may partly explain the high proportion of lower-order thinking skills found in the results. At the same time, open-ended tasks are more likely to encourage higher-level reasoning.

Based on these limitations, several directions for future research are suggested. Future studies should conduct comparative analyses across multiple textbooks, publishers, grade levels, or curriculum versions in order to identify broader patterns of cognitive demand in English learning materials. Researchers are also encouraged to adopt mixed-method approaches by combining qualitative cognitive mapping with quantitative analyses of student performance data, such as test scores, written responses, or learning analytics, to examine the relationship between assessment design and learning outcomes more comprehensively. Methodological rigor could also be improved by using computer-assisted qualitative data analysis software to support coding consistency, interrater reliability calculations, and transparency in analytical procedures. In addition, expanding the analysis to include essay-based and performance-oriented assessment tasks would provide a more comprehensive picture of cognitive demand in textbooks and classroom assessment, particularly in evaluating students' ability to synthesize ideas, construct arguments, and generate new knowledge.

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G. Conclusion

This study aimed to map the distribution of lower-order and higher-order thinking skills in the evaluation questions of the English Bupena textbook for Grade VII by applying an integrated analytical framework based on Revised Bloom's Taxonomy and the SOLO Taxonomy. The findings indicate that the cognitive distribution of the textbook questions is predominantly oriented toward lower-order thinking processes. Quantitatively, 80.25% of the questions were categorized as LOTS, while 19.75% were categorized as HOTS. In terms of cognitive structure, most items were concentrated at the prestructural, unistructural, and multistructural levels of the SOLO taxonomy, with limited representation at the relational and extended abstract levels. These results suggest that the assessment tasks in the textbook tend to emphasize surface-level learning rather than promoting deeper cognitive Engagement and higher-level reasoning.

The study also demonstrates that integrating Bloom's taxonomy and the SOLO taxonomy provides a more comprehensive framework for evaluating the cognitive quality of textbook-based assessment. Bloom's taxonomy identifies the type of cognitive processes required. In contrast, the SOLO taxonomy explains the depth and structure of learners' understanding, enabling a multidimensional analysis of cognitive demand in educational materials. Based on these findings, it is recommended that textbook developers increase the proportion of higher-order thinking tasks to ensure a more balanced progression from foundational comprehension to analytical and evaluative thinking. At the classroom level, teachers are encouraged to adapt and redesign LOTS-oriented questions into HOTS-oriented activities to enhance students' critical thinking and deeper learning. Overall, strengthening the cognitive rigor of textbook assessment is essential to align instructional materials with the goals of contemporary education that emphasize critical thinking and independent learning.

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