

Content Analysis of Higher Order Thinking Skills in an English Textbook based On Bloom's Taxonomy

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ABSTRACT

This qualitative content analysis examines higher-order thinking skills (HOTS) in a Grade 8 English textbook within the Single National Curriculum (SNC), the product of which is a taxonomy of 135 student learning outcomes (SLOs) in 9 chapters of a textbook with topics such as peaceful coexistence, environment, and gender equity. Findings show a strong prevalence of lower-order thinking skills (LOTS) at 78%, including knowledge (1.8%), comprehension (27%), and application (49%) in comparison to HOTS, at 29% with the most common, analysis (2%), evaluation (5%), and synthesis (13%). This imbalance reflects the patterns of Pakistani EFL resources, where rote-learning cultures and test stresses put less importance on the critical analysis and problem-solving that are key to the 21st-century competences, especially in places such as Gilgit-Baltistan. The results indicate that the aspirations of SNC do not match the actual textbook use, suggesting the redesign of the curriculum to align cognitive needs (at least 40% HOTS) with the instructional goals, professional development of educators in the inquiry-based extensions, and the policy-based implementation of the evaluative assessments to foster inequity and innovation in English instruction.

Keywords: Higher Order Thinking Skills, Bloom Taxonomy, English textbook, Single national Curriculum, Content analysis.

Abbreviations: LOTs: Lower Order Thinking Skills, HOTs: Higher Order Thinking Skills, SLOs: Students Learning Outcomes

INTRODUCTION

In the current fast changing educational environment, textbooks that promote Higher Order Thinking Skills (HOTS) including analysis, evaluation, and synthesis, is necessary in an attempt to prepare students with the competencies of the 21st century that are not based on memorization. The English language textbooks, especially, are used to be the main instruments to establish the critical thinking and language proficiency in the various global settings. The paper discusses the implementation of HOTS in a Grade 8 English textbook in Pakistan under the Single National Curriculum through the taxonomy of Bloom (Ahmed et al., 2023; Bano et al., 2025; Irfan & Mahmood, 2025).

Historical development of Taxonomy of Bloom Taxonomy is attributed to the 1956 formulation of Benjamin Bloom in which he classified the cognitive skills into knowledge, comprehension, application, analysis, synthesis, and evaluation followed by a revision in 2001 which categorized the skills in much more specific form using verbs such as remembering, understanding, applying, analyzing, evaluating and creating. Educational reforms globally have over time been directed to concentrate on HOTS as a way of responding to the complex challenges in the real world, where the textbooks are being questioned on whether they encourage high level of thinking skills but not the Lower Order Thinking Skills (LOTS) (HONG, 2024; Huang & Yang, 2025; Hao et al., 2026).

In the situation on the ground in Pakistan, an example of uniformity of education is the Single National Curriculum (SNC) of 2021, which seeks to introduce HOTS, but the analysis of English textbook collections shows that HOTS are underrepresented, especially in such areas as Gilgit-Baltistan, where limited resources increase the tendency toward rote-learning. This imbalance is confirmed by studies of Punjab and Khyber Pakhtunkhwa textbooks, which have approximately 20-30 percent of Students Learning Outcomes (SLOs) aiming at HOTS, which do not allow students to develop analytically (Ahmed et al., 2023; Tajamal & Shakur, 2022; Saeed, 2025).

Outside of China, recent content analyses of English textbooks, like those in China and Indonesia, show synthesis tasks in creative writing and analysis and evaluation underrepresented at approximately 10-15% of tasks. Reforms that are supported by the UNESCO are focused on the balance between LOTS and HOTS to equip learners with innovation-driven economies, which are tied to the persistent shortfall in developing countries (Qasrawi & BeniAbdelrahman, 2020; Li, 2025; HONG, 2024).

Even with these improvements, Grade 8 English textbook by SNC in Pakistan depicts a lack of HOTS embedded in it with 78 out of 135 SLOs in SAC and only 21 in HAC, mostly in the synthesis category, with no systematic encouragement of analysis and evaluation to solve real-world problems (Ahmed et al., 2023; Bano et al., 2025; Irfan & Mahmood, 2025).

This demonstrates an acute research gap: although the older textbooks or other areas have been previously analyzed in Pakistani studies (since 2020), none explicitly disaggregates the Grade 8 English texts in Gilgit-Baltistan according to the original taxonomy of Bloom, ignoring the methodological gaps in terms of the activities in HOTS distribution (Amin et al., 2024; Saeed, 2025).

The research is important to curriculum writers, educators and policymakers by identifying areas of weaknesses in HOTS that can be addressed to improve critical thinking in SLOs and activities, improved lesson planning by teachers and improved student achievement in resource constrained schools such as Skardu.

Objectives of the Study

In accordance with the problem above, the objectives of the study are:

1. To investigate the presence of Higher Order Thinking Skills in an English textbook of grade 8.
2. To determine the most frequently represented categories of higher order thinking skills.

Research Question

Based on the objectives, the research will focus on;

1. How the higher order thinking skills are incorporated into the grade 8 English textbook?
2. Which categories of higher order thinking skills are most frequently represented in the English textbook?

LITERATURE REVIEW

Textbooks serve as pillars of contemporary education systems, where the material of the curriculum is systematically presented to facilitate teacher-driven teaching as well as self-guided learning of the students and incorporation of fundamental language skills such as reading, writing and critical thinking in subject areas such as English. They provide systematic expositions, focused tasks, and tests which are aligned to national standards to provide coherence in the varied classrooms and allow independent assessment in their own paces, but with an overall impact on the formation of attitudes and values in the form of selected themes and activities. In the exam-driven cultures such as the one in Pakistan, textbooks (as learning resources) will prevail in a learning process whereby basic learning is emphasized over higher order thinking despite the changing digital platforms that bring in interactivity (Kahila et al., 2026; Pangestuti et al., 2026; Zheng & Han, 2026; Kottin, 2024; Torkar, G., Kovač et al., 2022).

Bloom's Taxonomy gives an educational objective based on hierarchy developed by Bloom in 1956, which began with knowledge, comprehension, application, analysis, synthesis and evaluation as the levels of education and then it was revised in 2001 to the categories of remembering, applying, analyzing, evaluating and creating as dynamic aspects of pedagogical practice. The structure determines the design of lessons, the development of assessment instruments, and the evaluation of the content, where lower-order thinking skills (LOTS) focus on remembering and using at a basic level and higher-order thinking skills (HOTS) require more thorough processing. It is used worldwide and reveals disproportions in resources where low stages of materials dominate, as in EFL studies of tasks arranged in simple recall (define, list) to the complex creation (design, produce) (Saeed, 2025; Stevani & Tarigan, 2023; Köksal et al., 2023).

Higher-order thinking skills are a higher level of cognitive skills such as analysis (to break ideas into parts), evaluation (to judge the merit by some criteria), and creation (to come up with new solutions), and are more advanced than rote memorization to prepare learners in 21st-century problems such as problem-solving and innovation. These abilities improve long-term retention, academic performance, and practical flexibility, which can be developed through the means of arguments, projects, and inquiry assignments that force comparison, critique, and synthesis. The studies highlight the importance of HOTS with respect to critical and creative thinking, which can be transferred across all subjects in face of fast technological changes (Badolo et al., 2025; Kim, 2025; Silfani et al., 2025; Xiao et al., 2025; Aftab et al., 2025).

This research builds upon an original Taxonomy by Bloom and applies its six levels to break down 135 student learning outcomes (SLOs) and activities into the Grade 8 English textbook in Pakistan under the Single National Curriculum demonstrating LOTS prevalence (78 SLOs) over HOTS (57 SLOs, synthesis leading) and showing curriculum-practice disconnects. The verb indicators in the framework provide objective classification in that theory relates to textbook efficacy in fostering analytical depth of surface learning (Stevani & Tarigan, 2023).

Recent Pakistan scholarship post-2020 highlights the focus of the Single National Curriculum English materials is towards LOTS (70-80% of tasks) with HOTS limited to 20-30% in the context of rote traditions, and skewed comprehension focus evident in primary SNC analyses. This is reflected in EFL textbooks internationally: the high school readings of Indonesia give 65% to LOTS with little assessment (35% HOTS), the materials of Turkey gave 75% LOTS with emphasis on recall, and tasks of Grade 7 in China reached 40% HOTS with uneven distribution of analysis. These trends, which are exacerbated by the pressure to assess in Pakistan, are pointers to a long-term LOTS bias that needs specific changes (Kahila et al., 2026; Pangestuti et al., 2026; Kottin, 2024; Torkar, G., Kovač et al., 2022; Saeed, 2025; Stevani & Tarigan, 2023; Köksal et al., 2023; Badolo et al., 2025; Kim, 2025; Silfani et al., 2025; Xiao et al., 2025; Aftab et al., 2025).

Table 1: Cognitive Levels in English Textbooks: Comparative Distribution

Context	LOTS %	HOTS % (Dominant Category)
Pakistan SNC Grade 8	58	42 (Synthesis)
Punjab HSSC	70-75	25-30 (Analysis)
Indonesia High School	65	35 (Evaluation)
Turkey EFL	75	25 (Synthesis)
China Grade 7	60	40 (Creating)

RESEARCH METHODOLOGY

Research Design

The research design used in this study was a qualitative content analysis study design to analyze the cognitive levels entrenched in the Grade 8 English textbook of Pakistan under the Single National Curriculum. The categorization of the student learning outcomes (SLOs) and activities based on the levels of Bloom taxonomy with specific emphasis on the proportion of the distribution between the lower-order thinking skills (LOTS) and the higher-order thinking skills (HOTS) was made possible through the content analysis. This strategy made it easier to identify the cognitive needs objectively without relying on numerical surveys and experiments to make sure that the information obtained matched the study exploratory goals by viewing the textbook as the main unit of analysis.

Research Population

The sample of the research included all content items in the official Grade 8 English textbook published by the National Book Foundation as a part of the Single National Curriculum 2022, in particular, 135 SLOs in the nine chapters of the textbook. These chapters discuss a variety of topics, including peaceful coexistence, environment, travel, literature, religious studies, short stories, gender equity, science, and health, which are encompassing the instructional material taught in the public schools all over the country. This group of

people summarizes the intended cognitive framework of intermediate level teaching English language in Pakistan.

Research Sample

The study sample was all 135 SLOs that were picked up in the nine chapters of the Grade 8 English textbook, and they were supplemented with the key activities that are strictly connected with these outcomes, and a complete dataset was analyzed. Thematic variations were fully represented in chapters, and the samples were stratified based on cognitive indicators (e.g., verbs that indicate analysis or synthesis). This full list of SLOs was a census-style sample which eliminated selection bias and offered a strong generalizability in the scope of the textbook.

Research Tool Development

The experiment-specific checklist instrument was created on the 6 levels of the initial Taxonomy of Bloom, with action verb indicators added to the instrument to allow a more specific categorization (e.g. define knowledge, create synthesis). The tool had operational definitions, code criteria and examples specific to English language tasks organized as a table to be tabulated by chapters. The process of development was done by refining through pilot coding of sample SLOs in order to make them comprehensible and applicable to textbook material.

Validity and Reliability

The validity was determined by a parallel alignment of the checklist with the Bloom established framework by experts, validated by review by supervisor, and related to the literature on taxonomy, which ensured content and construct fidelity. The researcher ensured consistency in solo coding, which was supplemented with inter-coder triangulation with a peer educator through coding 20 percent of the sample, which achieved an agreement of 92 percent and intra-coder consistency was checked twice. These were steps that reduced subjectivity on qualitative classification.

Data Collection

The qualitative research was conducted by using systematic notes of the Grade 8 English textbook, where all 135 SLOs and related activities were extracted by hand and transcribed into a master spreadsheet sorted by the chapter. It took one week, and a complete scan of the physical textbook and the digital curriculum was used, and all the items were recorded and preliminary verb identification done. This consideration of ethics covered representation without distortion, following the academic documentation guidelines.

DATA ANALYSIS

The content analysis results were performed using qualitative methods to code and tabulate the items of the dataset by comparison with the checklist and assign each SLO/activity to one of the levels of Bloom according to the prevailing cognitive verbs and task requirements, then the counts are counted by number and percentages. Thematic patterns were observed through narrative interpretation of LOTS and HOTS prevalence, and tables represented dominance (e.g., synthesis as leading HOTS). The cross-checking with objectives provided the analytical depth, which resulted in the insights of textbook cognitive balance.

Table 2: Chapter Structure and SLO Distribution in Grade 8 English Textbook

Chapter No	Chapter Names
Chapter 1	Peaceful Co-existence
Chapter 2	Environment
Chapter 3	Travel and Tourism
Chapter 4	Literature and Poetry
Chapter 5	Hazrat Muhammad - An Embodiment of Justice
Chapter 6	Short Stories, Poetry and Play
Chapter 7	Gender Equality and Equity
Chapter 8	Science and Technology
Chapter 9	Health

Table 2 describes the hierarchy and arrangement of Student Learning Outcomes (SLOs) in Chapter 9 of the Grade 8 textbook on English, which belongs to the single national curriculum (SNC) in Pakistan. Every chapter is devoted to some different topics, including peaceful coexistence, the environment, traveling, literature, gender equality, science, and health. This topic variety implies an attempt to offer a whole learning experience including both academic curriculum and practical problems and lessons of morality. Some chapters, like Gender Equality and Equity and Hazrat Muhammad - An Embodiment of Justice, probably stimulate the higher-order thinking process discussing social issues of larger complexity, whereas some others might be more oriented to the basic knowledge and understanding.

The allocation of SLOs among those chapters indicates that there is a balance between the Lower Order Thinking Skills (LOTS) and the Higher Order Thinking Skills (HOTS). A major part of the SLOs is LOTS, which deals with basic recall and understanding as well as knowledge and comprehension. Conversely, HOTS, including analysis, evaluation, and synthesis, are fewer common occurrences but are more stressed in those topics that require more cognitive attention. As an example, such chapters as Literature and Poetry and Science and Technology probably have more chances to provide students with the possibility to analyze and evaluate, which stimulates development of critical thinking and solving problems.

On balance, this table demonstrates that the curriculum is aimed at uniting LOTS and HOTS, but past studies of Pakistani textbooks suggest that HOTS are still not well represented. Although there are some opportunities to use higher level of cognitive processing in the textbook, the general orientation seems to be more focused on the foundational knowledge. The given distribution indicates that although the students are exposed to the idea of higher-order thinking, the focus on the development of such skills as evaluation and synthesis that are crucial when it comes to real-world problem-solving and critical thinking may be required.

Table 3: Overall Distribution of Cognitive Levels Across Bloom's Taxonomy

Cognitive Levels	Numberof SLOs	Percentage	Cognitive Types
Knowledge	2	1.8%	LOT
Comprehension	37	27%	LOT
Application	67	49%	LOT
Analysis	4	2%	HOT
Evaluation	7	5%	HOT
Synthesis	18	13%	HOT
Total	135	100%	

Table 3 gives the individual analysis of the distribution of cognitive levels of the Grade 8 textbook in English based on the Taxonomy of Bloom. It classifies the Student Learning Outcomes (SLOs) into six mental levels, that are Knowledge, Comprehension, Application, Analysis, Evaluation and Synthesis. The balance of the Lower and Higher Order Thinking Skills (LOTS and HOTS) which exist in the textbook is emphasized by this distribution.

Based on the table, we can note that the highest number of SLOs is Application, as 49 out of the total SLOs are applied at this level of cognitive functions. Application involves students applying the knowledge that they have acquired in new and practical situations, and this is the one that is necessary in developing real world skills. The second most common category is Comprehension, with 27 %, which is concerned with the information perception and its meaning. The combination of the two types shows 78% of the total SLOs, which means that there is a high focus on the basic cognitive abilities that are instrumental in acquiring the most basic concepts of the English language.

Higher Order Thinking Skills (HOTS) with Analysis, Evaluation and Synthesis, on the other hand, represent a significantly less significant share of the SLOs. Analysis depicts a 2% of the SLOs, Evaluation 5% and Synthesis 13%. These are important cognitive skills that lead to the development of critical thinking and problem-solving skills; however, the fact that they are not well represented implies that the information taught in the textbook does not focus heavily on them as it should equip students with complex and real-world challenges. Synthesis, the most represented of the HOTS types, aims at the combination of information to produce an idea or solution, and even that is not as represented compared to the foundational abilities of knowledge and understanding.

Altogether, the Table 3 shows that although a wide range of cognitive levels is discussed in the Grade 8 English textbook, LOTs predominance is evident, and much attention is paid to the practical use and understanding of knowledge. This imbalance implies that although students are motivated to learn and practice the concepts, more attention is not paid to critical thinking activities e.g. analysis, evaluation and synthesis, which are prerequisite to the development of higher-order cognitive skills. It is indicative of the larger trend in the curriculum where basic learning is more prioritized over the enhancement of further cognitive processing.

FINDINGS

The results of the study demonstrate important information about the cognitive system of Grade 8 English textbook within Pakistan under Single National Curriculum (SNC). The domination of the Lower Order Thinking Skills (LOTS) in the textbook, and an extensive emphasis on Comprehension and Application, which take 78% of all Student Learning Outcomes (SLOs) is one of the first ones. Although these competencies are essential in developing a good academic base, the prevalence of these skills implies that the textbook lays much emphasis on the basic knowledge than the higher-order cognitive abilities. Such imbalance can be seen in the low number of Higher Order Thinking Skills (HOTS) that comprise of the total SLOs at 29%. Synthesis is the most common group of HOTS, but it occupies only 13% of the total results, whereas Analysis (2%) and Evaluation (5%) are overrepresented. It means that the curriculum is lacking in the areas of critical thinking, problem-solving, and the possibility of assessing and synthesizing complex information, which are essential in real-life situations.

The practical Application of knowledge is also promoted within the textbook since this level of cognition constitutes almost half (49%) of the SLOs. This constitutes a major part of the curriculum, since it assists the students in attaching the abstract knowledge that they have to the practical situation. Nevertheless, the fact that Analysis and Evaluation is not that diverse implies that the curriculum does not offer its students

sufficient opportunities to participate in activities that would demand a higher level of cognitive processing, including critical evaluation and the development of novel concepts. This is an indication of a disjuncture between the desired objectives of the SNC, which is development of HOTS and the contents of the textbook.

The findings indicate that the structure of the textbook needs to be improved to foster greater cognitive skills at the higher order. In a bid to correspond to the general objectives of the SNC, it is essential to make sure that curriculum developers and educators incorporate more activities that promote Analysis, Evaluation, and synthesis. In this way, the students would be in a better position to acquire the skills of critical thinking and to solve complex and real-life problems, which would eventually boost their academic and practical skills. Summing up, although the textbook is well-grounded in the skills of the first level, there is a definite necessity to create a more balanced strategy that would bring more focus on the higher order thinking and equip the students with the needs of the 21st century.

DISCUSSIONS

The Grade 8 English textbook by the Single National Curriculum (SNC) of Pakistan, the analysis of which shows a significant prevalence of lower-order thinking skills (LOTS), where 78 out of 135 student learning outcomes (SLOs) are only located in knowledge, comprehension, and application locations of Bloom Taxonomies, with higher-order thinking skills (HOTS) (analysis, evaluation, and synthesis) constituting 29 only. This LOTS dominance corresponds to trends in recent Pakistani EFL studies, in which a 2022 study of English reading comprehension at university level revealed that HOTS skills (especially analysis and evaluation) were not yet well-developed among students because of the rote-learning practices, which does not allow students to respond to texts critically. Equally, assessment of Punjab Higher Secondary School Certificate (HSSC) English textbooks have shown that there is a cognitive gap with the HOTS making less than 30% of exercises since exam focused designs put more emphasis on memorization and application rather than analytical studies (Aziz & Rawian, 2022; Tajamal & Shakur, 2022; Wang et al., 2026; Nora et al., 2026; Aftab et al., 2025).

Synthesis is the most common category of HOTS (13%), commonly found in creative writing assignments involving integration of ideas but analysis (2%), and evaluation (5%), are hardly represented, limiting students to argument deconstruction and validity assessment. These results are reflected in the international EFL settings that have been examined after 2020, including the Indonesian high school textbooks where HOTS were 35 with little to no evaluation tasks being offered despite the curriculum focus on the 21st-century competencies, and the skew can be ascribed to the absence of resources and the need to emphasize the core proficiency within the cultural contexts. This imbalance further complicates matters in the Pakistan-specific literature, such as Gilgit-Baltistan, where a 2025 review observes that a systemic barrier such as teacher training shortage impedes the HOTS deployment to continue surface learning in the curricula of Pakistani state schools (Saeed, 2025; Silalahi et al., 2022; Kosasih et al., 2022; Kamiljanovna et al., 2022; Aftab et al., 2025).

The mismatch between the HOTS aspirations and textbook realities at SNC highlights related system-wide issues, such as a 2021 study of Pakistani EFL textbooks in which skills of critical thinking are more successfully developed at the LOTS levels, suggesting the use of redesigned questions to encourage evaluation in thematic units such as gender equity and science. The authors of recent scholarship recommend additional strategies, including explicit HOTS modeling of reading tests, that enhanced the performance of Pakistani learners with respect to bridging the metacognitive gaps in analytical skills. This may be tackled with the help of balanced verb-aligned SLOs to increase cognitive equity so that Grade 8 students are ready to work on the complicated problems of the innovation-driven economies.

CONCLUSION

Overall, this content analysis of the Grade 8 English textbook according to the Single National Curriculum of Pakistan validate a massive lack of balance in the number of student learning outcomes, as only lower-order thinking skills occupy 78% of the learning outcomes whereas higher-order thinking skills are limited to just 29% of the learning outcomes mostly in synthesis. These results demonstrate the strengths of the textbook in understanding and practice but also indicate the serious flaws in developing abilities of analysis and evaluation, which is reflective of the ongoing issues in Pakistani EFL textbook where memorization traditions damage 21st-century skills.

Finally, the lack of representation of HOTS limits the readiness of students to address complicated problems, especially in the low-resource areas such as Gilgit-Baltistan, and indicates that curriculum changes are necessary to bring the SLOs in line with the higher levels of the Bloom taxonomy. Through a focus on equal demand of cognition, future texts will be able to prepare the learners better to critical citizenship and innovation-based economies.

RECOMMENDATIONS

Following the profound undertaking of this study and analysis of the findings, the following recommendations are presented which will prove useful in future designing the curriculum in a more effective manner.

1. The Grade 8 English textbook of the National Curriculum in Pakistan needs to be revised to obtain a more significant and meaningful reflection of Higher Order Thinking Skills (HOTS).
2. Considering the observed high rate of Lower Order Thinking Skills, it would be prudent to have additional activities that would represent the cognitive levels of Analysis, Evaluation, and Synthesis.
3. The Student Learning Outcomes (SLOs) should be modified by writers of the textbooks to place more emphasis on higher level of thinking, other than focusing on memorizing and basic understanding.
4. The textbook should have more inquiry-based, problem solving and open-ended exercises to promote independent learning and support the requirements of the new day education.
5. Each of the six levels in Bloom taxonomy should have a relative distribution to allow the progression of the students with the basic knowledge to more complex thinking.
6. The Analysis and Evaluation were the least represented levels so more exercises on comparison, interpretation, making judgments, and critical appraisal should be introduced.
7. Practical usefulness of knowledge in students' needs to be strengthened by creative assignments and tasks based on real-world contexts.
8. The instructional resources and teacher counseling resources in the textbook ought to be expanded to enable teachers to be more prepared in the way they can implement HOTS in their lessons.

9. The textbook in question must be evaluated and updated on a periodical basis in order to keep it related to the current educational standards and global trends towards the greater emphasis on the higher-level cognitive development.

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