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HIGHER-ORDER THINKING SKILLS IN THE ENGLISH TEXTBOOK AT THE INTERMEDIATE LEVEL

Syeda Hamayal Bibi[*1], Azhar Pervaiz[2]

[*1]*MPhil Scholar, Department of English Language & Linguistics, University of Sargodha*
[2]*Associate Professor, Department of English Language & Linguistics, University of Sargodha*

[*1]hamayalbb@gmail.com

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Abstract

The present study focuses on evaluating two textbooks to examine the effectiveness of Higher Order Thinking skills (HOTS) through theory-driven content analysis. The worldwide emphasis on inclusion of HOTS in education and curriculum is the driving force of this research. According to this study, the inclusion of HOTS in textbooks is not a testimony for higher-order thinking; higher-order thinking which is also dependent on the quality of instructional design and External Cognitive Load (ECL) by using the theory of content analysis. The research utilizes quantitative analysis by exploiting Bloom's Revised Taxonomy and Cognitive Load Theory. Firstly, the instructional tasks of the 9th-class Federal Board English textbook (FBET) and the O-level Cambridge system English textbook (OLET) are categorized using Bloom's revised taxonomy (BRT). Secondly, the categorized HOTS are further coded for the presence of ECL through Cognitive Load Theory (CLT). The findings reveal that FBET contains 54.1% lower order thinking skills (LOTS) and 45.9% HOTS. In contrast, the OLET contains 8.3% LOTS and 91.7% HOTS. Moreover, FBET contains 53.3% ECL, and the OLET contains 5% ECL. The study concludes that the textbook evaluation extends beyond measurement of cognitive domains to include analysis of instructional design quality. The findings suggest that textbook developers, curriculum designers, and educators create textbooks that are cognitively aligned and instructionally sound to promote learning and improve education.

INTRODUCTION

The present study focuses on evaluating English Textbooks in order to understand the cognitive competence embedded in the textbooks under research. In the educational paradigm, textbooks hold a central position. They are often known as the backbone of most instructional programs. In English language teaching programs, the significance of textbooks is undeniable. As Sheldon (1988) terms textbooks the "visible heart" of any English language teaching program, they function not only as a neutral container of linguistic content but as a dynamic instrument that actively shapes the minds of the learners. Textbooks determine what should be learned, how it should be learned, and what cultural and cognitive perspective should be formed (Cunningsworth, 1984). Keeping in mind the significant role textbooks play; their selection should be a careful and vigilant process. The selection and evaluation of textbooks is not merely the administrator's task, but it is a fundamental task that researchers should shed light on. As Shelton (1988) states, the evaluation process is very critical, and textbooks can cause dissatisfaction among

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teachers and students. Thereby, it may cause hindrances in achieving the desired learning objectives that it was meant to support.

The term global education emphasizes the importance of critical thinking. Since the early years of education, critical thinking is part and parcel of every lesson plan. The Partnership for 21st Century Skills emphasizes the importance of critical thinking skills. The Pakistan Curriculum 2022-23 inculcates this global trend in the Pakistani curriculum by advocating inquiry-based learning and conceptual understanding. Despite these reforms, the implementation of these policies posed a great challenge.

Textbooks used for educational purposes can be traced back in history. Textbooks have been used as an educational tool for centuries. Broadly speaking, HOTS are recognized as a central goal of contemporary educational system. Drawing upon Bloom's Revised Taxonomy, it generally categorizes HOTS into three components: analysis, evaluation, and creation. These components allow students to move from rote memorization to critical and analytical engagement. In addition to it, cognitive load theory provides a framework that facilitates learning efficiency. According to this theory, the process of learning is blocked only when working memory capacity is exceeded (Sweller et al., 1988; Sweller et al., 2011). In this case, extraneous cognitive load can be managed by designing instructional material with a clear layout, structure and easy language.

Pakistani educational systems can be broadly divided into two curricula: National and international. This dual system illustrates the social and economic inequalities (Rahman, 2005). Turning to the rationale of the study, the study employs comparative analyses that stems from the assumption that the Cambridge system of assessment is the educational benchmark as it is internationally recognized and utilized globally. The study significantly contributes to education policy and paves the road to design syllabuses as per the needs catering to international standard. Furthermore, the findings of this study will hold significant implications for a range of educational stakeholders. As for curriculum planners and textbook developers at institutions are concerned like the Punjab Curriculum, PTB and the Federal Board, the present research will offer empirical and data-driven evidence on the cognitive level of SSC-1 English textbook which can serve as a crucial foundation for future revisions. Apart from that, it can guide developers to design materials that ensure a balanced approach between Lower-Order Thinking Skills (LOTS) and Higher-Order Thinking (HOT). The present research is designed to answer the following research questions:

1. What types of cognitive processes, as defined by Bloom's Revised Taxonomy, are represented in the exercises and tasks of the SSC-I English and Cambridge O-level textbook?
2. What is the ratio or percentage distribution of LOTS and HOTS in the selected exercises of the SSC-I English textbook and the Cambridge O-level?
3. What types of extraneous cognitive load elements are found in the HOTS-based questions of the SSC-I English textbook and the Cambridge O-level?
4. How can the textbook and associated teaching practices be improved to better support higher-order thinking and reduce cognitive overload?

Literature Review

In Bloom's Taxonomy, knowledge is the foundation of cognitive skills as it refers to the retention of specific information like definitions theories or facts (Adams, 2015). It also includes remembering previously learnt facts, specific details or complete theories. The third level is comprehension reflecting stages like summarizing, explaining or interpreting. The ability to understand the meaning is comprehension (Ibid). Application is the ability to use previous knowledge such applying, solving, demonstrating, using and illustrating that knowledge. Analysis is breaking down the material into its possible components and identifying the relationship between them. Furthermore, synthesis involves rearrangement of elements to form a new pattern or Structure. Creativity is involved in this level as learner

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has to breakdown complex Phenomenon into component parts and forms a new novel product. Evaluation is the ability to infer the material based on definitive criteria. In it, learners have to criticize, appraise, justify or defend their judgement based on qualitative or quantitative method. In 2001, Anderson and Krathwohl (2001) revised the taxonomy show the modern understanding of cognition and learning. These revisions changed the nomenclature of the cognitive processes. Additionally, these changes were made in order to meet the new demands of educational paradigm and align the taxonomy with the modern cognitive psychology. The application of the taxonomy includes textbooks that can shape classroom instruction, influence student outcomes and encourage critical thinking skills. Moreover, they serve to categorize as the primary guide for instruction (Bremholm, 2020). Moslemabad (2010) investigated the learning objectives of three Senior High School English textbooks and University English textbook. His findings suggest that HOTS increased from 20. 8% to 27. 8%. A similar study in Iran concluded that in 9th Grade English textbook, the activities focused much are listening and speaking (Mirbane & Chalak, 2017).

The main essence of the cognitive load theory is the dependence of learning on effective management of cognitive load during the process of learning and executing a bundle of new information especially biologically secondary knowledge as it is not acquired automatically through evolutionary process (Sweller, Ayres and Kaliyuga, 2011). The first stage of CLT emerged primarily through the works of Sweller (1988/1999). Initially, CLT focused on problem-solving methods such as means–ends analysis placing heavy demands on working memory. The first stage was mainly concerned with the extraneous load (Plass et al., 2010). Intrinsic cognitive load (ICL) is the cognitive demand imposed by learning material itself. In that case, ICL is unavoidable because it represents the cognitive demand that must be managed to enable schema acquisition (Sweller, 1994; Pollock, Chandler, & Sweller, 2002). At times, instructional techniques plan to increase German load theory resulting in imbalance between cognitive load and working memory capacity. Hence German load theory functions as extraneous load and hinders learning overall learning process (Plass et al., 2010).

In twenty-first century, higher order thinking skills are extremely essential for learner as the demand for critical thinking, problem-solving, creativity and informed decision-making. Furthermore, HOTS are considered competencies acquired to function well in digital era (King, Goodson, & Rohani, 1998; Trilling & Fadel, 2009). Despite this growing status, HOTS has no universal definition. It is conceptualized variedly across various fields such as in the fields of psychology, education, philosophy and cognitive science altogether (Resnick, 1987; Lewis & Smith, 1993). Bloom's taxonomy of educational objectives defined higher-order thinking skills (HOTS) referring to complex cognitive abilities that allow learners to analyze information, evaluate evidence and create new ideas, however, HOTS involve active meaning making process judgment and reasoning (Resnick, 1987; King, Goodson, & Rohani, 2013). HOTS are the skills that learners should have to master in order to learn deep and apply knowledge to real world context (Bransford et al., 2000).

Methodology

The present research employs a qualitative research strategy for interpretation, conceptual understanding and categorization of the textual data. In qualitative approach it specifically adopted Directed Content Analysis (DCA) as research is driven by a well-established theory which is used to form a coding scheme. Then the coding categories are used as a tool for data analysis. Theory-driven content analysis (TDCA) is widely used in studies that aim to test or apply the existing theoretical framework to textual data. The categories applied to textual data are not generated inductively from the data. Rather, they are derived from established theories. In TDCA, several steps are followed: Selection of theoretical framework, a coding scheme, the textbook classifications, a coding scheme, the quantification of data. This research

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method is practical and fruitful in the field of textbook evaluation because it permits analysis that has theoretical depth in a structured manner

As for the population of the study is concerned, it consists of the whole instructional material present in the SSC-1 English textbook prescribed by the Federal Board of Intermediate and Secondary Education and the O-level English textbook of the Cambridge system. The data consists of 164 tasks from the textbook used by the 9th class in Pakistan and 109 tasks from the O-level English Textbook. Moreover, random sampling technique is employed to extract representative sub-set. Data is coded through two coding schemes. First coding scheme is adopted from Shiyu Xie's study. The instrument is formed using the revised Bloom's taxonomy. The second coding scheme was developed for this research, using cognitive load theory to identify traced of extraneous cognitive load. The multidimensional analysis of textbook by employing two coding schemes allows evaluating HOTS from every possible angle. The study has adopted a descriptive scaling method. The data derived from FBET and OLET are scaled using a structured classification method. Unlike traditional psychometric scaling. This study assigns data to predefined categories. The first coding scheme is hierarchical.

As this study is based on textual analysis of the textbook, no human participation is required. Data is collected through the following steps. The researcher reads prescribed book by the Federal Board of Intermediate level and O-level. At this initial phase, the researcher understands the structure of the textbook. The researcher identifies the pattern of instructional tasks present in the textbook. Following the familiarization, researcher selects a sample. A sample unit is selected keeping in mind the wide and lengthy nature of instructional exercises. Each question is viewed as a separate, analyzable unit apart from grammar. At this step, coding schemes are devised. The coding schemes contain theoretically supported concepts and their operationalized definitions. The revised Bloom's taxonomy coding scheme is adopted whereas the coding scheme for cognitive load theory is developed. The coding stage is divided into two parts:

Coding 1: Each task is carefully analyzed to determine the cognitive process that is required for the completion of tasks. The revised Bloom's taxonomy coding scheme is used for this purpose. In cases where the task involves cognitive skills, the highest level is selected. The classified tasks are further classified into higher-order thinking skills and lower-order thinking skills. Coding 2: The higher-order thinking skills are further coded for the elements of extraneous load. The second coding scheme used is informed by cognitive load theory.

After coding all the tasks, the researcher organizes and records all the data collected. All the coded information is systematically entered into a Microsoft Excel sheet. The recording allows easy organization and retrieval.

Data Analysis

The analysis is given in the form of the research questions already given the answer of which is given as below.

Q. No.1 What types of cognitive processes, as defined by Bloom's Revised Taxonomy, are represented in the exercises and tasks of the SSC-I English textbook and the Cambridge system O-level textbook?

In Federal Board Textbooks as depicted in the following table 5.1., 'Understand' is the most common cognitive level with frequency of 43 forming 22.2%. 'Apply' is the second most common type of cognition. Out of the 184 tasks analyzed, 42 are situated within the Apply cognitive level which has a 21.6% representation of the total analyzed tasks. These activities enable students to apply their learning and engage in active learning. The Analyze category is the third most common cognitive level seen in the textbook. 39 tasks are categorized as being at the Analyze level (20.1% of the 184 tasks analyzed). This is

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little lower than the ratio for the Apply category. The first cognitive level that is part of the Higher Order Thinking Skills (HOTS) is Analyze. Tasks at this level are intended to teach learners' analytical skills, which include the skill to compare and distinguish ideas, the skill to look into patterns and structures, the skill to identify constituent elements or the skill to see the relationships among elements. The examples in the table below are listed by the Analyze cognitive level. Create is the next most common category of cognition in the prescribed textbook. The 184 tasks are distributed across the Create cognitive level with 33 of these tasks representing 17% of the total sample. These tasks require students to write, design or create something new. Activities with writing, speaking, and project work are provided within each unit in the text to provide opportunities for the students to develop creative thinking skills. The above indicates that the textbook promotes the growth of Higher-Order Thinking Skills (HOTS). Moreover, there are 20 tasks in the textbook that fall into the Remember cognitive level (10.3% of the total sample). These activities involve students bringing to mind facts, terms, or definitions that they have learned. This is because there are relatively few Remember level tasks in the prescribed textbook, which implies that the textbook does not focus heavily on rote memorization. Rather, there is a higher percentage of Understand and Apply tasks to demonstrate the focus on understanding concepts and applying the knowledge in real situations. The following examples are from the Remember cognitive level. The "evaluate" cognitive level is the least represented in the textbook. Out of the 194 tasks analyzed, 17 are categorized at the Evaluate cognitive level, which represent 8.8% of all tasks. This relatively low proportion indicates that the textbook gives less consideration to tasks in which students are called upon to make judgments, evaluate ideas, or make written arguments based on evidence. The following are examples of tasks that are considered to be Evaluate cognitive. On a general level, the distribution of cognitive levels throughout the book suggests a similar distribution of some of the cognitive levels with a significantly lower representation of some of the cognitive levels. The minimum and maximum frequency in the textbook range from 8.8% to 22.2%. It has all of the six cognitive domains included, showing the multi-dimensionality of the textbook. The fact that some cognitive skills are uncommon across a group of students emphasizes the minimization of these cognitive skills.

Table 1 Percentage and Frequency of Cognitive Domains Across the Federal Board Book

Cognitive level	Frequency	Percent
Remember	20	10.3%
Understand	43	22.2%
Apply	42	21.6%
Analyze	39	20.1%
Evaluate	17	8.8%
Create	33	17.0%
Total	194	100%

In contrast, O-level English textbook (OLET) contains higher order thinking skills in abundance as depicted in table 5.2. The most frequent cognitive domain found in O-level English textbook is of “Create”. “Create” is the highest cognitive level, it allows students to use all cognitive skills comprehensively in order to accomplish tasks. Total of 37 tasks out of 109 are categorized under “create” cognitive domain, forming 33.9%. The second most frequent cognitive skill is “Evaluate”, with 33% of presence this cognitive domain allows student to judge and evaluate the ideas or right arguments on basis of evidence. The third most frequent cognitive domain is of analyze with 24. 8 percentages. Analysis allows learners to understand critical concepts by distinguishing ideas and comparing them in order to understand different structures and patterns. Understand cognitive skill is present in only 8 tasks in given sample that constitutes 7. 3%. Moreover, apply is only present in one task forming 0. 9%. The stark

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difference between the cognitive domains of the two prescribe books is that the O-level textbook sample has no account for "remember" cognitive domain. Remember is the first cognitive skill and allows students to recall the facts or the prior knowledge. The absence of this cognitive domain significantly highlights that O-level English textbook is concentrated in higher order cognitive domains.

Table 2 Percentage and frequency of cognitive domains across the O-level book

Cognitive skills	N	%
Remember	0	0
understand	8	7.3%
Apply	1	0.9%
Analyze	27	24.8%
Evaluate	36	33.0%
Create	37	33.9%

Q.No. 2 What is the ratio or percentage distribution of LOTS and HOTS in the selected exercises of the SSC-I English textbook and the Cambridge system O-level textbook?

To address this research question, the distribution of HOTS and LOTS is calculated in the selected exercises from FBET and OLET. The findings of FBET indicates that out of a total of 194 questions, 105 questions are categorized as LOTS, while 89 questions are of HOTS. The percentage of LOTS present in the prescribed textbook is 54%. Whereas the percentage of HOTS present in the prescribed textbook is 45.9%. The distribution of HOTS and LOTS present in the textbook is slightly imbalanced. Yet the prescribed textbook contains a sufficient number of cognitive skills to develop HOTS in the students. The presence of HOTS indicates a shift in curriculum design. Curriculum designers are gradually integrating higher-level learning objectives. The distribution of HOT and LOTS in the prescribed textbook informs us about the textbook's ability to develop basic language.

Table 3. Cognitive skills in Boards of Punjab

Cognitive skills	Federal Board Book – Frequency	Federal Board Book – Percentage	Cambridge/O-Level Book – Frequency	Cambridge/O-Level Book – Percentage
LOTS	105	54.1%	9	8.3%
HOTS	89	45.9%	100	91.7%
Total	194	100%	109	100%

In contrast to FBET, the distribution of HOTS and LOTS is calculated in the selected exercises from the OLET. The findings indicate that out of a total of 109 questions, 100 questions are categorized as HOTS, while 9 questions are of LOTS. The percentage of LOTS present in the prescribed textbook is 8.3%. Whereas the percentage of HOTS present in the prescribed textbook is 91.7%. The distribution of HOTS and LOTS present in the textbook is imbalanced. The prescribed textbook contains an abundance of cognitive skills to develop higher-order thinking skills in the students. The textbook is focused entirely on developing HOTS that can be used in real life.

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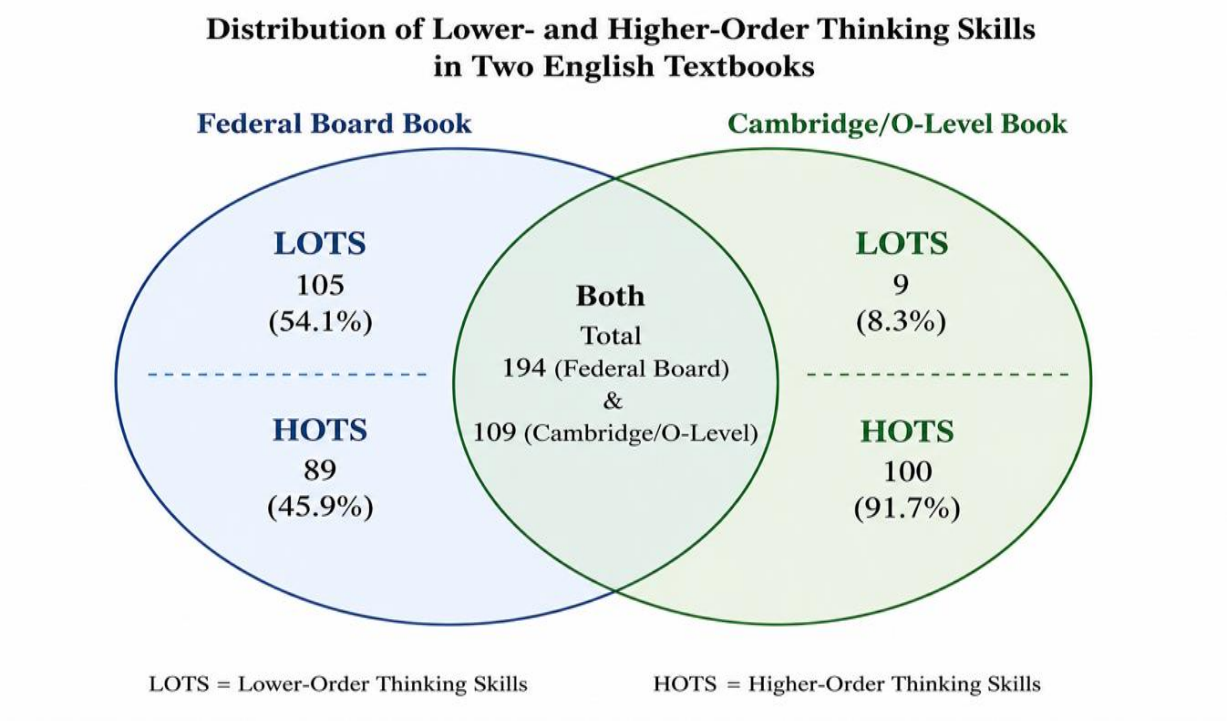


Fig 1. Distribution of LOTS and HOTS in Two English Textbooks

5.2.3. RQ 3. What types of extraneous cognitive load elements are found in the HOTS-based questions of the SSC-I English textbook and the Cambridge system O-level textbook?

In both the prescribed English textbooks external cognitive load is calculated using a coding scheme based on cognitive load theory. Results depict that O level English textbook is mostly ECL free, with only 5% presence of ECL. On the other hand, the Federal board English textbook accounts for 53. 3% of ECL. Results highlight that the Cambridge system English textbook has successfully Incorporated CLT in their textbook, whereas the Federal board English textbook is still struggling to fully incorporate CLT in textbooks.

Table 4. ECL as encountered in Cambridge system and Federal Board

Overall ECL Presence – Dataset 1: O-level Cambridge		
No ECL	95	95.0%
ECL	5	5.0%
Overall ECL Presence – Dataset 2: Federal Board		
No ECL	43	46.7%
ECL	49	53.3%

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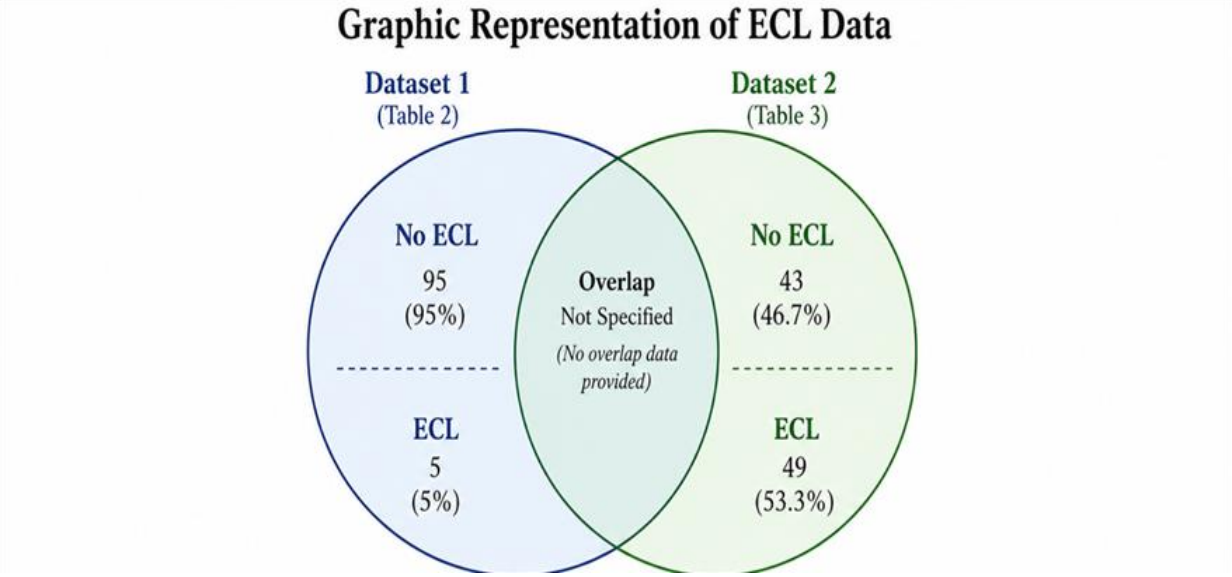


Fig 2. Graphic Representation of ECL Data

This study divides ECL into types and sub types with appropriate definitions to understand the major issue that each textbook has. In the FBET, all types of ECL listed in the coding scheme are present, yet some sub-types are missing. Split attention is the most frequent, at 47%, mostly present in comprehension HOTS. Physical separation is present in the textbook, whereas non-integrated labels or keys are not present. The second most frequent is goal and instruction clarity, with a percentage of 22.7%, as instructions in some questions are not clarified. Vague instructions are 18.2%, and missing worked examples is 3%. The third most frequent ECL is layout and organization, with a percentage of 21.2%. Poor layout is 19.7%, and visual clutter is 1.5%. It is mostly caused by poor representation of tasks and layout. The fourth most frequent ECL is coherence and irrelevance, with a percentage of 6.1%. Seductive details are 3%, and metalinguistic overload is 3.1%. The least present ECL type is Redundancy, with a percentage of 3%. Verbatim repetition is 3%, and ineffective dual coding is absent. It is mostly caused by poor representation of tasks and layout. The fourth most frequent ECL is coherence and irrelevance, with a percentage of 6.1%. Seductive details are 3%, and metalinguistic overload is 3.1%. The least present ECL type is Redundancy, with a percentage of 3%. Verbatim repetition is 3%, and ineffective dual coding is absent.

Table 5. Frequency and Percentage of Federal Board ECL

ECL Part: Federal Board	ECL Subpart	Frequency	Percentage
Split Attention	Physical separation	31	47%
	Non-integrated labels	0	0%
Redundancy	Verbatim repetition	0	0%
	Ineffective dual coding	2	3%
Coherence & Irrelevance	Seductive details	2	3%
	Metalinguistic overload	2	3%
Goal & Instruction Clarity	Vague instruction	13	19.7%
	Missing worked examples	2	3%
Layout & Organization	Poor layout	13	19.7%

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	Visual clutter	1	1.5%

Table 5.4. How can the textbook be improved to better support higher-order thinking and reduce cognitive overload: ECL Part [Federal Board]

In contrast to the Federal board, the O-level English textbook accounts for only 5% of ECL in the Cambridge system O-level book. In 5 questions, physical separation is present, which is unavoidable, as in textbooks, this percentage is unavoidable. These findings reflect that O-level textbook resonates with CLT.

The results have shown that there is a significant difference between these two textbooks. Federal Board textbooks have higher percentage of LOTS whilst Cambridge O-level book is predominantly HOTS tasks. Moreover, almost all tasks in the Cambridge textbooks are ECL free and nearly 46% of those tasks in the Federal Board textbooks are almost unnecessary and irrelevant cognitive load which will decrease the effectiveness. These findings suggest that by providing HOTS-based activities is not just sufficient. They need to be represented with clarity and cognitively effective. The present research contributes a good deal to the literature by integrating Bloom's taxonomy and cognitive load theory into a single approach to evaluate textbooks. Tasks in textbooks have been categorized using Bloom's Taxonomy. The reason is that the analysis of textbooks has been very less frequently explored using CLT. In this regard, the present research thus offers a quite new and systematic approach by way of evaluating textbooks through CLT to empirically judge the quality of the textbooks included in syllabi. Moreover, I have found significant differences in evaluating national and international textbooks.

The implications of the results emphasize the significance of providing comparatively more opportunities for well-designed HOTS-based activities and limiting cognitive load. Anyway, further research is needed to expand this study to other levels/grades of English textbooks especially, to focus the interaction between ECL and cognitive loads. Experimental studies can also be carried out to confirm these results. The textbook should include more tasks that target evaluative cognition, as the percentage of evaluation is quite low as a whole. The textbook should include hot questions that are easy for students, and they can attempt them independently.

As this study shows, in the Federal Board, the English textbook, 45.9% of HOTS are present. The distribution of HOTS is uneven in this textbook. There is no gradual increase in the number of HOTS. Chapter 1 contain 39% HOTS, whereas Chapter 9, 43% HOTS. Whereas in the Cambridge system, the O-level English textbook is concentrated on HOTS. Every chapter is dense in HOTS. Students are required to perform higher-order thinking. Thus, students of O-levels must be able to write grammatically correct sentences.

The graph provides a visual demonstration of HOTS across different chapters of FBET. HOTS are scattered randomly across the textbook with no proper progression. While analyzing the ECL across both textbooks, it is noted that in the Federal Board English textbook, the pattern of ECL is uneven. There is no trend of progression followed. The reversal effect is not kept in mind. Whereas in the Cambridge system, the English textbook ECL is negligible.

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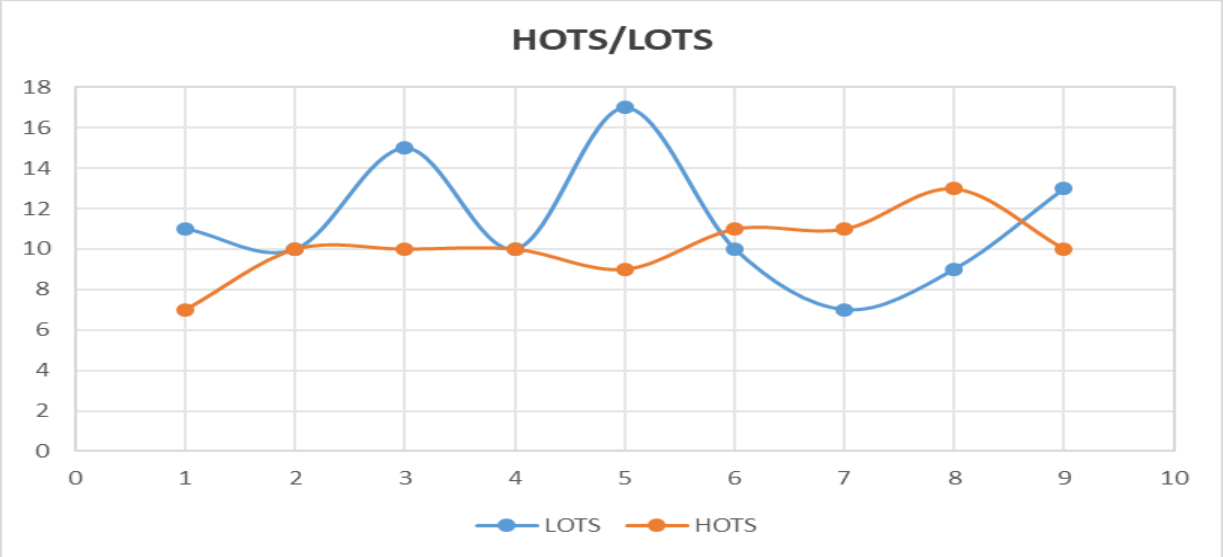


Fig 3. Graphic Representation of HOTS and LOTS

The study is committed to textbook modification and providing recommendations for textbook improvement.

1. There should be a gradual progression of HOTS questions. Textbooks contain an irregular percentage of HOTS across textbooks. Students should be introduced to tasks that gradually build up their skills.
2. The textbook should reduce tasks, including repetitive recall, to test memorization. As 21st-century requirements are to make learners adaptable, innovative, and collaborative.
3. Textbooks should be aligned with Bloom's taxonomy and cognitive load theory, as both theories provide a comprehensive framework for forming an all-inclusive textbook.
4. Modern textbooks should include interactive learning material that contains proper visual literacy and audiovisual resources to meet 21st-century educational needs.
5. The ECL should be minimized in textbooks as it is an excessive cognitive constraint present, and it hinders learning.
6. Language should be easy and divided into parts to allow smooth understanding and comprehension.
7. The writing task should be introduced with the skills students need to acquire. It allows students to understand what skills they should work on.

Conclusion

The study has examined the effectiveness of HOTS questions in the Federal Board 9th class English textbook and the Cambridge O-level English textbook. To achieve this goal, the study examines the cognitive distribution across both books. To inquire about the effectiveness of HOTS, this study first identifies the cognitive domains and then examines HOTS and LOTS. After categorizing tasks such as HOTS and LOTS, this study aims to identify the ECL present in HOTS questions. The percentage of ECL is calculated. This responds to the growing body of concerns regarding the inclusion of 21st-century skills in educational systems. Textbooks are guidelines that provide information about the content and pedagogical activities students will go through. In the Pakistani context, the textbook plays a central role in educational settings. The cognitive orientation of the textbook determines whether students are introduced to 21st-century skills or not. Textbooks' inclusion and emphasis on hearts play an important role in developing intellectual capabilities in students. The study is focused on understanding the cognitive orientation of both books. This comparative analysis allows researchers to compare National

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and international textbooks and identify the different cognitive demands and trends in both textbooks. Moreover, this study investigates the ECL in HOTS questions as ECL wastes cognitive ability. HOTS questions with no ECL are more effective in developing higher-order thinking, as all the cognitive energy is used in solving the questions and building understanding. The findings of this research reveal a significant difference between the two textbooks. The federal board 9th class English textbook contains a higher percentage of LOTS whereas the Cambridge system O-level English textbook contains a higher percentage of HOTS. The O-level English textbook is formed wholly of HOTS. Moreover, the tasks marked as HOTS are ECL-free. Few tasks are categorized for physical separation, which is unavoidable, as tasks are prone to this issue. In contrast, in the Federal Board English 9th class textbook, 46% of HOTS tasks contain ECL. As a result, students waste cognitive ability in understanding the task before doing it. These findings are significant as it shows that only the inclusion of HOTS is not enough for promoting higher-order thinking. Textbooks should contain HOTS tasks that are free from ECL, so that students can understand instructional design and easily comprehend what they are asked for. They study qualitative content analysis of the Cambridge system O-level English textbook and the Federal Board 9th-class English textbook in order to understand the instructional design provided in the textbook.

Finally, the study suggests that to promote higher-order thinking, effective textbooks must not only provide tasks that enable higher-order thinking, but also provide tasks in a cognitively efficient way. Such textbooks can foster learners' critical thinking, creative thinking and problem-solving skills and their communication skills, so as to meet the requirements of the 21st-century education. The present research sheds light on the following recommendations.

REFERENCES

Adams, N. E. (2015). Bloom's taxonomy of cognitive learning objectives. *Journal of the Medical Library Association, 103*(3), 152–153. https://doi.org/10.3163/1536-5050.103.3.010

Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Longman.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How people learn: Brain, mind, experience, and school*. National Academy Press.

Bremholm, J. (2020). Higher-order thinking in English language arts: A systematic review. *L1-Educational Studies in Language and Literature, 20*, 1–37. https://doi.org/10.17239/L1ESLL-2020.20.01.07

Golding, C. (2014). The educational design of textbooks: A text for being interdisciplinary. *Higher Education Research & Development, 33*(5), 921–934. https://doi.org/10.1080/07294360.2014.890573

King, F. J., Goodson, L., & Rohani, F. (1998). *Higher order thinking skills: Definitions, strategies, assessment*. Center for Advancement of Learning and Assessment.

King, F. J., Goodson, L., & Rohani, F. (2013). *Higher order thinking skills: Definition, teaching strategies, assessment*. Center for Advancement of Learning and Assessment.

Lewis, A., & Smith, D. (1993). Defining higher order thinking. *Theory Into Practice, 32*(3), 131–137. https://doi.org/10.1080/00405849309543588

Mizbani, M., & Chelak, A. (2017). Analyzing listening and speaking activities of Iranian EFL textbook *Prospect 3* through Bloom's revised taxonomy. *Advances in Language and Literary Studies, 8*(3), 38–43. https://doi.org/10.7575/aiac.alls.v.8n.3p.38

Plass, J. L., Moreno, R., & Brünken, R. (Eds.). (2010). *Cognitive load theory*. Cambridge University Press.

Pollock, E., Chandler, P., & Sweller, J. (2002). Assimilating complex information. *Learning and Instruction, 12*(1), 61–86. https://doi.org/10.1016/S0959-4752(01)00016-0

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Qasrawi, R., & Beni Abdelrahman, 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. *International Online Journal of Education and Teaching, 7*(3), 744–758.

Rahman, T. (2005). The Muslim response to English in South Asia: With special reference to inequality, intolerance, and militancy in Pakistan. *Journal of Language, Identity & Education, 4*(2), 119–135. https://doi.org/10.1207/s15327701jlie0402_4

Resnick, L. B. (1987). *Education and learning to think*. National Academy Press.

Riazi, A. M., & Moslemabad, N. (2010). Evaluation of learning objectives in Iranian high school and pre-university English textbooks using Bloom's taxonomy. *TESL-EJ, 13*(4), 1–16.

Soe, T. (2024). Investigating critical thinking in ELT textbooks: A systematic literature review of textbook evaluation studies. *Theory and Practice of Second Language Acquisition, 10*(1), 1–29. https://doi.org/10.31261/TAPSLA.13882

Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science, 12*(2), 257–285. https://doi.org/10.1207/s15516709cog1202_4

Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and Instruction, 4*(4), 295–312. https://doi.org/10.1016/S0959-4752(94)90003-5

Sweller, J., Ayres, P., & Kaliyuga, S. (2011). *Cognitive load theory*. Springer.

Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. Jossey-Bass.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Wilson, L. O. (2006). *Beyond Bloom: A new version of the cognitive taxonomy*. The Second Principle.

Xie, S. (2024). *An analysis of the cognitive demands of senior high school English as a foreign language textbook in China*. SAGE Open, *14*(3). https://doi.org/10.1177/21582440241280457