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Critical Thinking in Reading Comprehension Questions in Intermediate English Textbooks: A Comparative Study of Punjab and Federal Board

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Abstract
This study examines the cognitive demands of reading comprehension questions in Class XI and Class XII English textbooks prescribed by the Punjab Textbook Board (PTB) and the Federal Board of Intermediate and Secondary Education (FBISE). It focuses on the representation of critical-thinking-related cognitive processes and the alignment of textbook questions with relevant curriculum-specific Student Learning Outcomes (SLOs). The study employs qualitative content analysis, using Bloom's Revised Taxonomy (Anderson&Krathwohl, 2001) as its analytical framework. A total of 559 reading comprehension questions were analyzed, including 129 questions from PTB Class XI, 136 from PTB Class XII, 149 from FBISE Class XI, and 145 from FBISE Class XII. The questions were classified into six cognitive levels: Remember, Understand, Apply, Analyze, Evaluate, and Create. Their alignment with curriculum-specific SLOs was also examined. Frequencies and percentages were used to summarize the distribution of cognitive levels and curriculum alignment. The findings reveal that Analyze is the most frequently represented cognitive level across all four textbooks, while Apply and Create receive limited attention. Higher-order thinking skills (HOTS) constitute a greater proportion than lower-order thinking skills (LOTS) in all four textbooks, although their representation decreases from Class XI to Class XII in both boards. Regarding curriculum alignment, FBISE demonstrates a higher proportion of highly aligned questions than PTB at both grade levels. The study concludes that although the selected textbooks provide considerable opportunities for analytical and evaluative engagement, the distribution of cognitive levels and alignment with curriculum outcomes remain uneven. It highlights the need for balanced cognitive demands and stronger curriculum alignment in the design of intermediate-level English textbook questions.

Keywords: *Critical thinking, reading comprehension questions, Bloom's Revised Taxonomy.*

1. Introduction

1.1 Background of the Study

Critical thinking skills are now a core component of teaching and learning across all subject areas in modern education. Skills such as reasoning, analysis, assessment, and problem-solving enable students to interact meaningfully with material rather than simply memorizing facts (Facione, 1990). These abilities allow individuals to examine ideas, interpret evidence, make informed judgments, and develop reasoned conclusions. In educational context, critical thinking is viewed as essential for academic achievement, informed citizenship, and successful engagement in a rapidly changing world (Ennis, 1987). Reading comprehension is especially crucial for developing critical thinking in language education. Reading entails interpreting concepts, analyzing arguments, drawing conclusions, and making decisions based on textual evidence, in addition to word decoding and information recall (Kintsch, 1998). Reading becomes an effective means of developing higher-order thinking skills when students are encouraged to engage with texts at deeper cognitive levels. Reading comprehension questions are central to this process because they shape how students engage with and interpret written material. The design and quality of these questions directly determine the cognitive depth students are required to demonstrate. Questions framed to elicit literal responses keep learners at the levels of recall and basic understanding; conversely, questions that require comparison, analysis, or evaluation guide learners toward higher-order cognitive engagement (Grabe, 2009).

In Pakistan, the National Curriculum for English explicitly aims to develop critical thinking through reading and defines specific Student Learning Outcomes (SLOs) that textbooks and assessments should reflect. However, the extent to which these national curriculum objectives are actually evident in reading comprehension questions across different educational boards remains an area requiring systematic investigation. This comparative study addresses that gap through qualitative analysis of comprehension tasks in the two most widely used intermediate-level English textbook systems in Pakistan: PTB and FBISE. Frequencies and percentages are used as descriptive summaries within the analysis to compare cognitive profiles and examine which board more closely aligns with national curriculum standards.

Against this background, the present study examines the reading comprehension questions included in Class XI and Class XII English textbooks prescribed by PTB and FBISE. Using Bloom's Revised Taxonomy as its analytical framework, the study classifies comprehension questions according to six cognitive levels and compares the representation of lower-order and higher-order thinking skills. It also examines the alignment of these questions with the relevant curriculum-specific Student Learning Outcomes.

1.2 Problem Statement

The development of critical thinking is an important objective of English language education, and reading comprehension activities can provide opportunities for learners to engage with texts at different cognitive levels. However, the extent to which prescribed English textbooks incorporate questions requiring higher-order cognitive engagement remains an important concern in textbook evaluation. An overemphasis on questions involving factual recall and basic understanding may limit the representation of more complex cognitive processes, including application, analysis, evaluation, and creation. Although previous research has examined textbook curriculum alignment, a comparative examination of the cognitive demands of reading comprehension questions in PTB and FBISE intermediate English textbooks

remains necessary. The problem addressed by this study is therefore the need to determine how reading comprehension questions in the selected textbooks represent the six cognitive levels of Bloom's Revised Taxonomy, how lower-order and higher-order thinking skills are distributed, and how these questions correspond to the relevant curriculum-specific Student Learning Outcomes.

1.3 Research Objectives

The study aims to achieve following research objectives;

1. To what extent do the reading comprehension questions in higher secondary English textbooks of PTB and FBISE reflect the six cognitive levels of Bloom's Revised Taxonomy (Anderson&Krathwohl, 2001)?
2. To compare the proportions of lower-order thinking skills (LOTS) and higher-order thinking skills (HOTS) represented in the reading comprehension questions across the two educational boards and grade levels.
3. To evaluate the alignment of reading comprehension questions in PTB and FBISE English textbooks with the relevant curriculum-specific Student Learning Outcomes (SLOs).

1.4 Research Questions

The study addresses the following research questions:

1. To what extent do reading comprehension questions in Class XI and Class XII English textbooks prescribed by PTB and FBISE reflect the six cognitive levels of Bloom's Revised Taxonomy?
2. What are the relative proportions of lower-order thinking skills (LOTS) and higher-order thinking skills (HOTS) represented in the reading comprehension questions across the two boards and grade levels?
3. To what extent do reading comprehension questions in PTB and FBISE English textbooks align with the relevant curriculum-specific Student Learning Outcomes (SLOs)?

1.5 Significance of the Study

This study is significant because it examines the extent to which intermediate-level English textbooks incorporate cognitive demands associated with critical thinking through their reading comprehension questions. Through qualitative interpretation of question design, supported by descriptive frequency and percentage summaries, the research offers a detailed picture of textbook content and its alignment with curriculum expectations. The outcomes are useful for curriculum developers and textbook designers seeking to align assessment tasks more closely with intended SLOs and for policymakers evaluating the implementation of national curriculum standards across educational boards. The study also supports teachers by clarifying the cognitive levels present in prescribed materials, enabling them to supplement or adapt tasks where certain skills are underrepresented or alignment is weak. Furthermore, the comparative perspective contributes to understanding how a unified national curriculum is interpreted and implemented differently across educational systems within the same country.

2. Literature Review

2.1 Conceptualizing Critical Thinking and Reading Comprehension

Critical thinking is widely recognized as a central educational outcome that enables learners to process information reflectively rather than passively accepting it at face value. Ennis (1987) defines critical

thinking as reasonable, reflective thinking focused on determining what to believe or do highlighting the ability to analyze assumptions, evaluate arguments, and draw conclusions based on evidence. Facione (1990) elaborates that critical thinking involves interpretation, analysis, evaluation, inference, and explanation skills directly relevant to reading comprehension and explicitly promoted in Pakistan's National Curriculum for English. In language education, reading is not merely the decoding of text but an active cognitive process of constructing meaning. Kintsch (1998) proposes that reading comprehension operates at multiple levels, from literal recall to deep integration of information, suggesting that the cognitive demands placed on learners determine the depth of understanding achieved. Grabe (2009) reinforces this view, arguing that reading is inherently a critical thinking activity; the types of questions learners are asked directly shape how deeply they engage with a text and what cognitive processes they activate principles that underpin the national curriculum's approach to reading instruction.

2.2 Bloom's Revised Taxonomy and Cognitive Levels

Bloom's Taxonomy provides a widely used framework for classifying educational objectives according to different levels of cognitive complexity. Originally developed by Bloom and his colleagues in 1956, the taxonomy organized cognitive objectives into six hierarchical categories: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. Anderson and Krathwohl (2001) revised the original taxonomy to reflect developments in educational theory and learning practices. The revised framework identifies six cognitive processes: Remember, Understand, Apply, Analyze, Evaluate, and Create. The categories are expressed through action-oriented terms and represent different types of cognitive activity involved in learning. Krathwohl (2002) explains that the revision also distinguishes between the cognitive process dimension and the knowledge dimension, providing a more comprehensive framework for classifying educational objectives. Brookhart (2010) similarly emphasizes the importance of designing assessment activities that require learners to use knowledge through reasoning, analysis, evaluation, and the production of responses rather than merely recall information. In the present study, Bloom's Revised Taxonomy serves as the principal analytical framework for classifying reading comprehension questions in PTB and FBISE English textbooks. The six cognitive categories are used to identify the cognitive demands represented in the selected questions.

2.3 Curriculum Alignment and Student Learning Outcomes

Curriculum alignment refers to the degree of correspondence between intended educational objectives, instructional content, learning activities, and assessment practices. When instructional activities reflect intended learning outcomes, they provide a more coherent relationship between what students are expected to learn and what educational materials require them to demonstrate. Porter (2002) emphasizes the importance of examining instructional content in relation to established curriculum standards. In language education, Student Learning Outcomes provide specific descriptions of the competencies learners are expected to demonstrate at particular educational levels. These outcomes guide the selection of instructional content, learning activities, and assessment tasks. In the Pakistani context, Malik (2024) examined the alignment of Punjab Textbook Board English textbooks with the National Curriculum for English (2006). The study analyzed textbook exercises in relation to curriculum competencies, standards, benchmarks, and Student Learning Outcomes. Its findings indicated that many exercises were only partially aligned with the prescribed curriculum expectations and identified

inconsistencies in the representation of different competencies. The study highlights the importance of examining textbook exercises against the intended learning outcomes rather than assuming that the inclusion of reading activities automatically ensures curriculum alignment.

2.4 Research Gap and Justification of the Present Study

Previous empirical studies have also demonstrated that reading comprehension materials may place unequal emphasis on different cognitive levels, particularly when lower-order questions dominate the instructional content. In Pakistan, Malik (2024) provides relevant evidence regarding the alignment of Punjab Textbook Board English textbooks with the National Curriculum for English (2006). However, the study focuses on PTB textbooks and examines their exercises in relation to curriculum competencies, standards, benchmarks, and SLOs. Similarly, international studies such as Ulum (2016), Laila and Fitriyah (2022), and Hasnah et al. (2024) contribute to understanding the representation of cognitive and critical-thinking-related activities in EFL textbooks, but their findings arise from different educational contexts and cannot directly establish the situation in Pakistani intermediate textbooks. Accordingly, a need remains for a comparative investigation that examines the reading comprehension questions prescribed by PTB and FBISE across Classes XI and XII. In particular, the representation of all six cognitive levels of Bloom's Revised Taxonomy requires examination alongside the relative proportions of LOTS and HOTS.

The present study addresses this gap through qualitative content analysis of 559 reading comprehension questions drawn from the selected PTB and FBISE English textbooks. It classifies the questions according to the six cognitive levels of Bloom's Revised Taxonomy, compares the distribution of LOTS and HOTS across boards and grade levels, and examines their alignment with relevant Student Learning Outcomes. In doing so, the study contributes a comparative account of the representation of critical-thinking-related cognitive demands and curriculum expectations in intermediate English textbooks in Pakistan.

3. Methodology

3.1 Research Design

The present study employed a qualitative content analysis design to examine the cognitive demands of reading comprehension questions in intermediate-level English textbooks prescribed by the Punjab Textbook Board (PTB) and the Federal Board of Intermediate and Secondary Education (FBISE). Qualitative content analysis was used to interpret the wording, structure, and expected cognitive operations of the selected questions. The analysis focused on identifying the cognitive levels represented in the questions and examining their correspondence with the relevant Student Learning Outcomes (SLOs) specified in the National Curriculum for English. These numerical summaries supported the qualitative interpretation and comparison of the data rather than constituting a separate quantitative research method.

3.2 Corpus of the Study

The corpus consisted of 559 reading comprehension questions extracted from four intermediate-level English textbooks prescribed by PTB and FBISE for Classes XI and XII. The selected textbooks represented the two educational boards and both intermediate grade levels, allowing a comparative examination of cognitive demands and curriculum alignment. The distribution of the questions across the selected textbooks is presented in Table 3.1.

Table 3.1 *Distribution of Reading Comprehension Questions in the Selected Textbooks*

Educational Board	Grade Level	Number of Questions
PTB	Class XI	129
PTB	Class XII	136
PTB Total		265
FBISE	Class XI	149
FBISE	Class XII	145
FBISE Total		294
Overall Total		**559**

As shown in Table 3.1, PTB contributed 265 questions, whereas FBISE contributed 294 questions. The overall corpus comprised 559 reading comprehension questions from the four selected textbooks. This corpus provided the basis for examining the representation of cognitive levels and comparing the alignment of textbook questions with curriculum expectations across the two educational boards and grade levels.

3.3 Sampling Technique and Selection Criteria

The study employed criterion-based selection of textbooks and included the reading comprehension questions available in the selected Class XI and Class XII English textbooks prescribed by PTB and FBISE. The textbooks were selected because they represented the two educational boards under investigation and covered the intermediate educational level specified in the research scope.

The selection of questions was based on their function as reading comprehension exercises. Questions included at the end of prose and poetry sections of the selected textbooks were considered for analysis. The investigation was restricted to these comprehension questions rather than covering all textbook exercises, grammar activities, writing tasks, or other instructional materials. The complete set of eligible reading comprehension questions from the four selected textbooks was included in the corpus. Consequently, the analysis covered 559 questions distributed across the two boards and grade levels.

3.4 Theoretical Framework and Analytical Categories

The study was grounded in Bloom's Revised Taxonomy (Anderson&Krathwohl, 2001), which provides a framework for classifying cognitive processes according to six levels: Remember, Understand, Apply, Analyze, Evaluate, and Create. The taxonomy was employed to identify the cognitive operations required to respond to each reading comprehension question.

For analytical purposes, the six cognitive levels were grouped into two broader categories: lower-order thinking skills (LOTS) and higher-order thinking skills (HOTS). Remember, Understand, and Apply were classified as LOTS, whereas Analyze, Evaluate, and Create were classified as HOTS. This grouping provided a basis for comparing the relative representation of lower- and higher-order cognitive demands across the selected textbooks. The operational definitions of the six cognitive categories are presented in Table 3.2.

Table 3.2 *Operational Classification of Cognitive Levels*

Cognitive Level	Operational Definition	LOTS/HOTS
Remember	Retrieving or recalling explicitly stated information from a text.	LOTS
Understand	Explaining, interpreting, or summarizing information presented in a text.	LOTS
Apply	Using textual information, knowledge, or concepts in a given situation.	LOTS
Analyze	Examining relationships, identifying patterns, and breaking textual information into meaningful parts.	HOTS
Evaluate	Making judgments or assessing ideas and arguments using evidence or criteria.	HOTS
Create	Generating original ideas, responses, alternatives, or solutions based on textual information.	HOTS

The classification was based on the cognitive operation required by each question rather than relying exclusively on the instructional verb used in its formulation. This distinction was important because the same verb may involve different levels of cognitive processing depending on the context and expected response. Therefore, the wording and structure of each question were considered when determining its principal cognitive category.

3.5 Data Collection Procedure

The data were collected from the selected Class XI and Class XII English textbooks prescribed by PTB and FBISE. The reading comprehension questions appearing at the end of prose and poetry sections were identified and extracted for analysis. Each eligible question was recorded and organized according to its respective educational board and grade level.

Following extraction, the questions were organized into four groups: PTB Class XI, PTB Class XII, FBISE Class XI, and FBISE Class XII. Each question was treated as an individual unit of analysis and assigned to one of the six cognitive categories of Bloom's Revised Taxonomy. The questions were subsequently examined in relation to the relevant curriculum-specific Student Learning Outcomes.

The extracted questions were then classified according to their cognitive levels and alignment categories. Their frequencies and percentages were calculated to summarize the distribution patterns within each textbook. This procedure provided an organized basis for comparing the cognitive demands and curriculum alignment of reading comprehension questions across the two educational boards and grade levels.

3.6 Procedure for Data Analysis

The collected data were analyzed through qualitative content analysis. The analysis involved examining each reading comprehension question, identifying its principal cognitive requirement, assigning it to the relevant category of Bloom's Revised Taxonomy, and evaluating its correspondence with the relevant curriculum SLO. The analysis was conducted in the following stages: Stage 1: Identification and organization of questions. All eligible reading comprehension questions were extracted from the

selected textbooks and organized according to educational board and grade level. Stage 2: Cognitive classification. Each question was examined in relation to the six cognitive levels of Bloom's Revised Taxonomy. The principal cognitive operation required by the question determined its classification. Stage 3: LOTS and HOTS categorization. The six cognitive levels were grouped into LOTS and HOTS. Remember, Understand, and Apply were classified as LOTS, while Analyze, Evaluate, and Create were classified as HOTS. Stage 4: Curriculum alignment analysis. Each question was examined against the relevant Student Learning Outcomes specified in the National Curriculum for English. Its degree of correspondence with the intended learning outcome was determined using the three alignment categories described in Section 3.7. Stage 5: Comparative analysis. The cognitive-level distributions and curriculum-alignment patterns were compared across PTB and FBISE textbooks for Classes XI and XII. Particular attention was given to similarities and differences between the boards and changes in the representation of cognitive levels across grade levels.

Frequencies and percentages were calculated to summarize the distribution of questions across the six cognitive levels, LOTS/HOTS categories, and curriculum-alignment categories. Percentages were calculated using the total number of questions in each respective textbook as the denominator:

$$\text{Percentage} = \frac{\text{Frequency of a category}}{\text{Total questions in the textbook}} \times 100$$

These descriptive calculations facilitated comparisons between the selected textbooks and supported the interpretation of the qualitative findings.

3.7 Curriculum Alignment Framework

In addition to cognitive classification, the study examined the alignment of reading comprehension questions with the relevant Student Learning Outcomes prescribed in the National Curriculum for English. The purpose of this analysis was to determine the extent to which the questions reflected the intended learning expectations for the respective grade levels.

Each question was examined in relation to the content, skill, and cognitive expectation expressed in the corresponding SLO. Based on the degree of correspondence, the questions were classified into three categories: High Alignment, Weak Alignment, and No Alignment. The operational criteria for these categories are presented in Table 3.3.

Table 3.3 *Operational Categories of Curriculum Alignment*

Alignment Category	Operational Criteria
High Alignment	The question corresponds closely to the intended content, skill, and cognitive expectation of the relevant SLO.
Weak Alignment	The question demonstrates partial correspondence with the relevant SLO but does not fully reflect its intended cognitive depth or learning expectation.
No Alignment	The question does not correspond meaningfully to the relevant SLO or its intended learning expectation.

The alignment analysis was conducted separately from the classification of cognitive levels. This distinction was maintained because a question's cognitive complexity does not necessarily establish its

correspondence with a particular curriculum outcome. Therefore, each question received a cognitive classification and an independent alignment classification. The frequencies and percentages of the three alignment categories were subsequently calculated to compare curriculum alignment across the selected textbooks.

3.8 Coding Consistency and Trustworthiness

Consistency in the classification of reading comprehension questions was important because the analysis involved interpreting their wording and expected cognitive operations. The use of Bloom's Revised Taxonomy provided a common analytical framework for classifying the questions, while the operational definitions of the six cognitive levels guided the categorization process. Similarly, the three curriculum-alignment categories provided a consistent basis for examining the correspondence between textbook questions and the relevant SLOs. The analysis also maintained a distinction between cognitive classification and curriculum alignment to avoid treating these two dimensions as interchangeable. Frequencies and percentages were calculated from the categorized data to support the comparison of findings across the four textbook groups.

4. Results

The analysis is presented through descriptive frequency and percentage summaries supported by qualitative interpretation. The findings are organized according to the research questions.

4.1 ***Distribution of Cognitive Levels in PTB and FBISE English Textbooks***

To address the first research question, all 559 reading comprehension questions were classified according to the six cognitive levels of Bloom's Revised Taxonomy. Each question was examined in terms of the principal cognitive operation required to respond to it. Table 4.1 presents the frequency and percentage distribution of the six cognitive levels across the four selected textbooks.

Table 4.1 *Distribution of Cognitive Levels in PTB and FBISE English Textbooks*

Cognitive Level	PTB XI (129)	PTB XII (136)	FBISE XI (149)	FBISE XII (145)
Remember	4 (3.10%)	18 (13.24%)	16 (10.74%)	17 (11.72%)
Understand	18 (13.95%)	46 (33.82%)	33 (22.15%)	42 (28.97%)
Apply	0 (0%)	0 (0%)	2 (1.34%)	3 (2.07%)
Analyze	70 (54.26%)	47 (34.56%)	56 (37.58%)	49 (33.79%)
Evaluate	36 (27.91%)	25 (18.38%)	41 (27.52%)	33 (22.76%)
Create	1 (0.78%)	0 (0%)	1 (0.67%)	1 (0.69%)
Total	**129 (100%)**	**136 (100%)**	**149 (100%)**	**145 (100%)**

Table 4.1 reveals differences in the distribution of cognitive levels across the selected textbooks. In PTB Class XI, analyze represents the most frequent cognitive category, accounting for 70 questions (54.26%). Evaluate follows with 36 questions (27.91%), while Understand accounts for 18 questions (13.95%).

Remember represents only four questions (3.10%). No question is classified under Apply, and only one question (0.78%) is categorized as Create. This distribution indicates a strong concentration on analytical questions, accompanied by a comparatively smaller representation of basic comprehension and creative cognitive processes.

The distribution in PTB Class XII demonstrates a different pattern. Understand becomes the most frequently represented category, with 46 questions (33.82%), followed by Analyze, with 47 questions (34.56%). Evaluate accounts for 25 questions (18.38%), whereas Remember represents 18 questions (13.24%). Similar to Class XI, no question is classified under Apply or Create. Compared with PTB Class XI, the proportion of Remember and Understand questions increases, while the representation of Analyze and Evaluate decreases. This distribution indicates a shift in the cognitive emphasis of PTB comprehension questions between the two grade levels.

In FBISE Class XI, analyze is also the most frequently represented category, accounting for 56 questions (37.58%). Evaluate represents 41 questions (27.52%), followed by Understand, with 33 questions (22.15%). Remember accounts for 16 questions (10.74%), while Apply and Create are represented by only two (1.34%) and one question (0.67%), respectively. The distribution demonstrates a comparatively broad representation of cognitive levels, although the two highest levels of application and creation remain minimally represented.

FBISE Class XII shows a relatively similar pattern. Analyze remains the most frequent category, with 49 questions (33.79%), followed by Understand, with 42 questions (28.97%). Evaluate accounts for 33 questions (22.76%), while Remember represents 17 questions (11.72%). Apply and Create remain limited, accounting for three (2.07%) and one question (0.69%), respectively. Compared with FBISE Class XI, the proportion of Analyze and Evaluate questions decreases, while Understand and Apply show a slight increase.

A comparison of the four textbooks indicates that Analyze is a prominent cognitive category across all selected textbooks, although its representation varies by board and grade level. PTB Class XI demonstrates the highest proportion of analytical questions (54.26%), whereas FBISE Class XII records the lowest proportion among the four groups (33.79%). Understand is particularly prominent in PTB Class XII (33.82%), while the representation of Remember varies across the textbooks. Apply and Create remain substantially underrepresented throughout the corpus. In particular, PTB does not include questions classified under Apply in either grade, while FBISE includes only a small number in both textbooks. These findings demonstrate that the cognitive distribution of reading comprehension questions differs across the selected boards and grade levels.

4.2 *Distribution of LOTS and HOTS in PTB and FBISE English Textbooks*

The second research question examines the overall distribution of lower-order and higher-order thinking skills in the selected textbooks. For this analysis, Remember, Understand, and Apply were grouped under LOTS, whereas Analyze, Evaluate, and Create were grouped under HOTS. Table 4.2 presents the frequencies and percentages of these two categories across the four textbooks.

Table 4.2 *Distribution of LOTS and HOTS in PTB and FBISE English Textbooks*

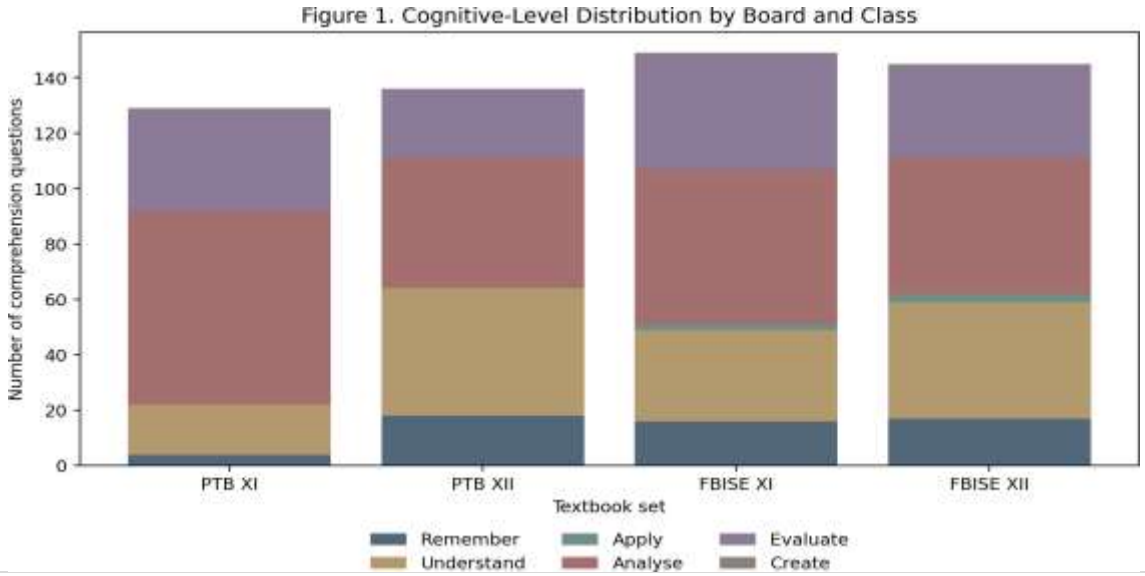
Educational Board	Grade Level	LOTS	HOTS	Total
PTB	Class XI	22 (17.05%)	107 (82.95%)	129 (100%)
PTB	Class XII	64 (47.06%)	72 (52.94%)	136 (100%)
FBISE	Class XI	51 (34.23%)	98 (65.77%)	149 (100%)
FBISE	Class XII	62 (42.76%)	83 (57.24%)	145 (100%)

Table 4.2 indicates that HOTS questions constitute the majority of comprehension questions in all four textbooks. However, their relative proportions differ across the two boards and grade levels.

In PTB Class XI, HOTS questions account for 107 out of 129 questions (82.95%), whereas LOTS questions represent only 22 questions (17.05%). This distribution indicates a strong emphasis on higher-order cognitive processes, particularly analysis and evaluation. However, the representation of this emphasis is uneven because Analyze and Evaluate account for most of the HOTS questions, while Create is represented by only one question and Apply is absent. In PTB Class XII, the proportion of HOTS decreases to 52.94% (72 questions), while LOTS increases to 47.06% (64 questions). Compared with Class XI, the representation of HOTS decreases by 30.01 percentage points. This change reflects a substantial shift in the cognitive distribution of PTB comprehension questions between the two grade levels. The increase in Remember and Understand questions, together with the reduced representation of Analyze and Evaluate, contributes to this difference.

FBISE demonstrates a comparatively smaller variation between the two grade levels. In Class XI, HOTS questions account for 98 out of 149 questions (65.77%), while LOTS questions represent 51 questions (34.23%). In Class XII, HOTS decreases to 57.24% (83 questions), whereas LOTS increases to 42.76% (62 questions). The difference in HOTS representation between the two grades is 8.53 percentage points, indicating a smaller change than that observed in PTB textbooks.

A comparison of the two boards reveals that PTB Class XI has the highest proportion of HOTS questions (82.95%), followed by FBISE Class XI (65.77%), FBISE Class XII (57.24%), and PTB Class XII (52.94%). PTB



demonstrates a substantial difference between its two grade levels, whereas FBISE shows a comparatively more consistent distribution of LOTS and HOTS. Nevertheless, both boards show a higher proportion of HOTS than LOTS in their selected textbooks.

Overall, the findings indicate that the selected textbooks place greater emphasis on higher-order cognitive processes than on lower-order processes. However, the distribution of these processes is not uniform across the boards and grade levels. The results also demonstrate that a higher proportion of HOTS does not necessarily indicate balanced coverage of all higher-order cognitive categories, as Apply and Create remain minimally represented in the corpus.

4.3 *Alignment of Reading Comprehension Questions with Curriculum SLOs*

The third research question examines the correspondence between reading comprehension questions and the relevant Student Learning Outcomes specified in the National Curriculum for English. Each question was assessed in relation to the intended content, skill, and cognitive expectation of the relevant SLO. Based on the degree of correspondence, the questions were classified into three categories: High Alignment, Weak Alignment, and No Alignment. Table 4.3 presents the reported frequency and percentage distribution of curriculum alignment across the selected textbooks.

Table 4.3 *Alignment of Reading Comprehension Questions with Curriculum SLOs*

Educational Board	Grade Level	High Alignment	Weak Alignment	No Alignment
PTB	Class XI	103 (79.84%)	2 (1.55%)	24 (18.60%)
PTB	Class XII	79 (58.09%)	42 (30.88%)	16 (11.76%)
FBISE	Class XI	139 (93.29%)	9 (6.04%)	1 (0.67%)
FBISE	Class XII	132 (91.03%)	2 (1.38%)	11 (7.59%)

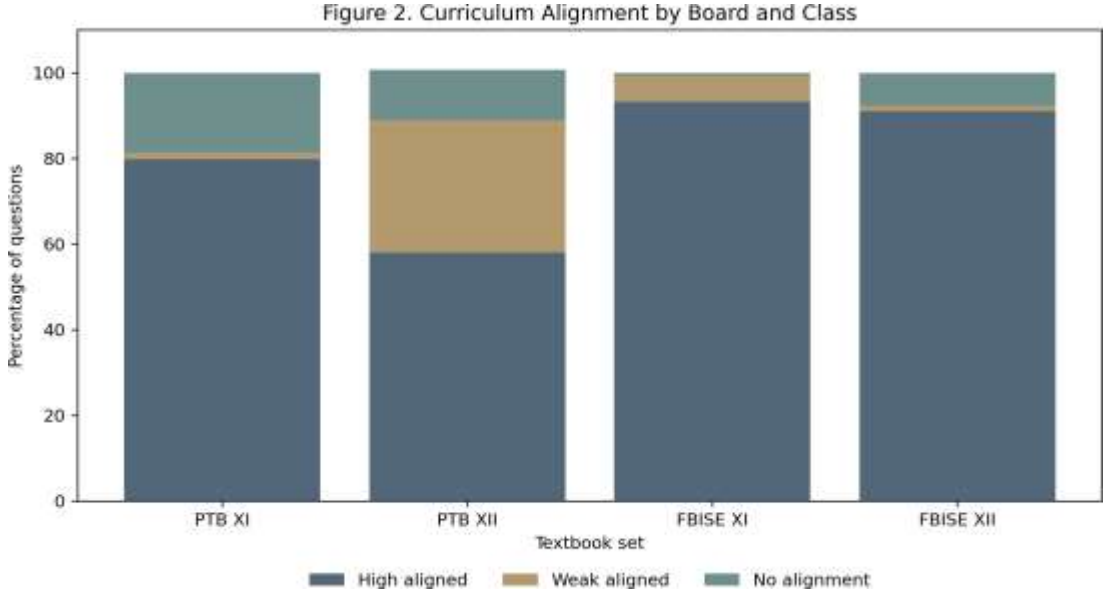
The findings show differences in curriculum alignment across the two educational boards and grade levels. In PTB Class XI, 103 questions (79.84%) are classified as Highly Aligned with the relevant SLOs. Only two questions (1.55%) are categorized as Weakly Aligned, while 24 questions (18.60%) are classified as having No Alignment. This distribution indicates that a substantial proportion of PTB Class XI comprehension questions correspond to the prescribed curriculum outcomes, although a noticeable proportion does not demonstrate alignment.

PTB Class XII presents a different alignment pattern. The reported results indicate that 79 questions (58.09%) fall under High Alignment, 42 questions (30.88%) under Weak Alignment, and 16 questions (11.76%) under No Alignment. Compared with Class XI, the reported proportion of High Alignment is lower, while Weak Alignment is considerably higher. This distribution suggests that a larger proportion of Class XII questions demonstrates only partial correspondence with the intended curriculum outcomes. However, the reported frequencies and percentages contain a numerical inconsistency and should be treated as provisional until the original coding records are checked.

FBISE Class XI demonstrates a high level of correspondence with the relevant SLOs. A total of 139 questions (93.29%) are classified as Highly Aligned, while nine questions (6.04%) are Weakly Aligned. Only one question (0.67%) is classified as having No Alignment. These results indicate that most FBISE Class XI comprehension questions correspond closely to the prescribed curriculum expectations. A similar pattern is observed in FBISE Class XII. High Alignment accounts for 132 questions (91.03%), while two questions (1.38%) are categorized as Weakly Aligned. Eleven questions (7.59%) are classified as having No Alignment. Although the proportion of High Alignment is slightly lower than in Class XI, it remains above 90% in both FBISE textbooks. The results therefore indicate a comparatively consistent pattern of curriculum alignment across the two grade levels.

A comparison of the two boards shows that FBISE records higher proportions of High Alignment in both

Figure 2. Curriculum Alignment by Board and Class



Class XI and Class XII than PTB. FBISE also demonstrates a relatively small difference in High Alignment between its two grade levels. PTB, in contrast, shows a lower reported proportion of High Alignment in Class XII than in Class XI, accompanied by a greater proportion of Weak Alignment. These patterns suggest differences in the correspondence between textbook comprehension questions and curriculum expectations across the two educational boards.

5. Discussion

In RQ1, the findings reveal an uneven distribution of the six cognitive levels across the four textbooks. These findings can be compared with the study conducted by Laila and Fitriyah (2022), who examined reading comprehension questions in an Indonesian Grade XII English textbook. Their analysis identified 142 questions, of which 83% represented LOTS and only 17% represented HOTS. Their findings indicated a substantial concentration on lower-order cognitive processes. In contrast, the present study identifies a comparatively stronger representation of HOTS, particularly in PTB Class XI, where 82.95% of the questions fall within the higher-order category. This difference suggests that the cognitive demands of reading comprehension questions vary considerably across textbook contexts and cannot be generalized

from one educational setting to another. A similar contrast can be observed with the findings of Rebla and Büyükahıska (2023), who examined reading activities in a Turkish Grade VII English course book through Bloom's Revised Taxonomy. Their study reported that 95% of the activities supported lower cognitive levels, with remembering being the most dominant category. The present study, however, identifies Analyze as the most frequent cognitive level in all four textbooks. This difference highlights a distinct cognitive pattern in the selected Pakistani intermediate textbooks, where analytical questions constitute a substantial proportion of reading comprehension exercises. The findings also differ from Ulum's (2016) analysis of reading comprehension questions in Q: Skills for Success 4 Reading and Writing. Ulum reported that the examined textbook lacked sufficient higher-level cognitive skills. In the present study, however, HOTS questions are considerably represented across both boards and grade levels. This comparison suggests that the inclusion of higher-order questions is not uniform across EFL textbooks and that the cognitive profile of a textbook depends on its particular content, educational context, and instructional design.

In RQ2, the findings reveal that HOTS questions constitute a larger proportion than LOTS questions in all four textbooks. Ulum's (2016) findings also reported insufficient representation of higher-level cognitive skills in the reading comprehension questions of the selected EFL textbook. The present study differs from this pattern because HOTS questions constitute the majority in all four textbooks. However, the findings should not be interpreted as evidence that the textbooks provide a fully balanced cognitive structure. Hasnah et al. (2024) also investigated the representation of critical-thinking features in locally produced Indonesian EFL textbooks. Their findings showed that the questions reflected only some critical-thinking features, particularly clarification, reasons and evidence, viewpoints or perspectives, and agreement or disagreement, while several other features were absent. Although their study employed a different analytical framework, its findings are relevant because they demonstrate that the presence of some critical-thinking opportunities does not necessarily indicate comprehensive coverage of critical-thinking dimensions.

In RQ3, the findings indicate differences in curriculum alignment between the two boards. FBISE demonstrates a higher proportion of questions classified as highly aligned with the relevant SLOs in both grades. The findings can be compared with Malik's (2024) evaluative study of Punjab Textbook Board English textbooks at the intermediate level. Malik examined textbook exercises in relation to the National Curriculum for English (2006) and reported that most exercises were only partially aligned with the relevant curriculum competencies, standards, benchmarks, and SLOs. The study also identified weaknesses in the reading comprehension exercises, including the prevalence of straightforward questions and the limited inclusion of activities associated with certain reading-related outcomes. The present study similarly identifies alignment-related weaknesses in the PTB textbooks, particularly in Class XII, where the proportion of highly aligned questions is lower than that of FBISE.

6. Conclusion

This study summarized by representation the critical-thinking-related cognitive demands in reading comprehension questions in Class XI and Class XII English textbooks prescribed by the Punjab Textbook Board (PTB) and the Federal Board of Intermediate and Secondary Education (FBISE). Using Bloom's Revised Taxonomy as the analytical framework, the study classified 559 reading comprehension

questions across six cognitive levels: Remember, Understand, Apply, Analyze, Evaluate, and Create. It also examined the extent to which these questions aligned with the relevant curriculum-specific Student Learning Outcomes (SLOs). The findings revealed that Analyze was the most frequently represented cognitive level in all four textbooks, while Apply and Create received limited attention. HOTS questions constituted a greater proportion than LOTS questions across both boards and grade levels; however, their representation declined from Class XI to Class XII in both PTB and FBISE. Regarding curriculum alignment, FBISE demonstrated a higher proportion of highly aligned questions than PTB in both grades, particularly in Class XII. Overall, the findings indicate that the selected textbooks provide considerable opportunities for analytical and evaluative engagement, but the distribution of cognitive levels and the correspondence between textbook questions and curriculum outcomes remain uneven. The study concludes that the cognitive demands and curriculum alignment of reading comprehension questions are important considerations in evaluating the extent to which English textbooks support the intended development of critical-thinking-related skills.

This study has certain limitations that should be considered when interpreting its findings. First, the analysis was restricted to reading comprehension questions in the Class XI and Class XII English textbooks prescribed by PTB and FBISE; therefore, the findings cannot be generalized to all English textbooks, educational boards, or grade levels in Pakistan. Second, the study focused exclusively on the cognitive demands represented in textbook questions and their alignment with curriculum-specific SLOs. It did not examine classroom practices, teachers' instructional approaches, students' responses, or the actual development of critical-thinking abilities. Third, the classification of questions under Bloom's Revised Taxonomy and the assessment of curriculum alignment involved analytical judgments based on the study's coding criteria. Finally, the study relied on the selected textbook questions as its primary data and did not investigate other learning activities, assessment practices, or supplementary instructional materials that may also contribute to students' cognitive development.

The findings have implications for textbook developers, curriculum planners, educational policymakers, and English language teachers. For textbook developers and curriculum planners, the uneven distribution of cognitive levels highlights the need to design reading comprehension questions that provide balanced opportunities for remembering, understanding, applying, analyzing, evaluating, and creating. Particular attention should be given to the limited representation of application and creation, as well as the decline in HOTS questions from Class XI to Class XII. The differences in curriculum alignment also emphasize the importance of systematically reviewing textbook questions against the relevant SLOs to ensure closer correspondence between instructional materials and intended curriculum outcomes. It also demonstrates the value of considering cognitive classification and curriculum alignment as separate but complementary dimensions of textbook evaluation.

Future research may extend this investigation to other educational boards, provinces, and grade levels to develop a broader understanding of the cognitive demands of English textbook questions in Pakistan. Further studies may also examine questions in other language skills, including listening, speaking, and writing, to determine whether similar patterns exist across different areas of language learning. Researchers may employ mixed-methods approaches by combining textbook content analysis with classroom observations, teacher interviews, and student assessments to investigate how textbook

questions are used in instructional settings and whether they contribute to students' critical-thinking development. Comparative investigations of revised textbook editions may also reveal whether curriculum reforms lead to changes in the representation of cognitive levels and SLO alignment. Such research would provide further evidence for improving the design, evaluation, and instructional use of English language textbooks.

References

Abrami, P. C., Bernard, R. M., Borokhovski, E., Waddington, D. I., Wade, A.,&Persson, T. (2015). Strategies for teaching students to think critically: A meta-analysis. *Review of Educational Research, 85(2), 275–314.* https://doi.org/10.3102/0034654314551063

Alsaawi, A. (2019). Critical thinking and reading comprehension: A review of the literature. *International Journal of English Linguistics, 9(3), 237–246.* https://doi.org/10.5539/ijel.v9n3p237

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

Arshad, M., Ahmed, Z.,&Malik, S. (2020). Relationship between critical thinking skills and reading comprehension of secondary school students. *Pakistan Journal of Education, 37(2), 45–62.*

Brookhart, S. M. (2010). How to assess higher-order thinking skills in your classroom. *ASCD.*

Buchanan, T. (2020). The efficacy of Bloom's taxonomy in designing reading comprehension questions. *Journal of Language Teaching and Research, 11(2), 211–219.* https://doi.org/10.17507/jltr.1102.03

Ennis, R. H. (1987). A taxonomy of critical thinking dispositions and abilities. *In J. B. Baron&R. J. Sternberg (Eds.), Teaching thinking skills: Theory and practice (pp. 9–26). W. H. Freeman.*

Ennis, R. H. (2018). Critical thinking across the curriculum: A vision. *Topoi, 37(1), 165–184.* https://doi.org/10.1007/s11245-016-9373-4

Facione, P. A. (1990). Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction. *American Philosophical Association.*

Forehand, M. (2010). Bloom's taxonomy. *In M. Orey (Ed.), Emerging perspectives on learning, teaching, and technology. University of Georgia.*

Grabe, W. (2009). Reading in a second language: Moving from theory to practice. *Cambridge University Press.*

Hasnah, Y., Ginting, P., Supiatman, L., Kharisma, A. J.,&Siahaan, H. (2024). How do locally produced EFL textbooks endorse critical thinking skills? A content analysis. *Journal of Language Teaching and Research, 15(1), 190–200.* https://doi.org/10.17507/jltr.1501.21

Kintsch, W. (1998). Comprehension: A paradigm for cognition. *Cambridge University Press.*

Krathwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. *Theory into Practice, 41(4), 212–218.* https://doi.org/10.1207/s15430421tip4104_2

Malik, S. (2024). Alignment of Punjab Textbook Board's English textbooks with the National Curriculum for English (2006): An evaluative study. *Linguistics and Literature Review, 10(2), 143–171.* https://doi.org/10.32350/llr.102.08

Porter, A. C. (2002). Measuring the content of instruction: Uses in research and practice. *Educational Researcher, 31(7), 3–14.* https://doi.org/10.3102/0013189X031007003

Richards, J. C.,&Rodgers, T. S. (2014). Approaches and methods in language teaching (3rd ed.). *Cambridge University Press.*

Shabani, K. (2016). Applications of Bloom's taxonomy in developing EFL critical thinking skills. *International Journal of Applied Linguistics&English Literature, 5(3), 132–141.*

https://doi.org/10.7575/aiac.ijalel.v.5n3p132