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CURRICULUM–ASSESSMENT ALIGNMENT IN BISE EXAMS: AN ANALYSIS USING BLOOM'S TAXONOMY

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Abstract
This research investigates the alignment between question papers of the Boards of Intermediate and Secondary Education (BISE) in Punjab, Pakistan, and the learning objectives specified in the national curriculum. Using Bloom's Taxonomy as the analytical framework, question papers from English, Mathematics, General Science, and Physics across three major boards (Lahore, Faisalabad, and Rawalpindi) were analyzed. Using systematic content analysis, every question was coded into one of Bloom's six levels of cognition: knowledge, comprehension, application, analysis, synthesis, and evaluation. The results showed a strong predominance of the lower-order thinking questions (comprehension and knowledge), with no substantial representation of higher-order abilities (analysis, synthesis, and evaluation). This is evidence of a mismatch between the desired learning outcomes of the curriculum and the actual methods used for assessment. The research suggests extensive training of paper setters, curriculum-examination review frameworks, and a greater focus on higher-order cognitive activities to improve the quality and validity of assessment in Pakistan's secondary education process.
Keywords: *Curriculum alignment, Bloom's Taxonomy, BISE, assessment, cognitive domain, secondary education.*

1. Introduction

The effectiveness of an education system lies to a great extent in the alignment of its curriculum, instruction, and assessment. Curriculum specifies what learners should know, instruction specifies how they are instructed, and assessment measures to what degree those goals are achieved. When these three factors are out of alignment, learning outcomes become skewed, resulting in surface learning instead of conceptual comprehension.

Coherence between instructional strategies, assessment tasks, and intended learning outcomes (ILOs) is ensured by curriculum alignment (Biggs, 1996). For educational systems to promote meaningful learning, higher-order thinking, and holistic development, effective alignment is essential. The new Single National Curriculum (SNC) in Pakistan attempts to combine the cognitive, emotional, and psychomotor domains while standardizing student learning outcomes (Ministry of Federal Education, 2022).

Misalignment of curriculum, instruction, and assessment leads to distorted educational outcomes and surface learning. BISE examinations still prioritize lower-order thinking while ignoring affective and psychomotor abilities, despite improvements like the Single National Curriculum (SNC). In order to ascertain if the existing exams accurately reflect the intended

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curriculum objectives, this study looks at the cognitive alignment of BISE question papers with Bloom's Taxonomy.

Teaching methods in Pakistan are greatly influenced by board exams, such as those held by BISE Lahore, Rawalpindi, and Faisalabad. Teachers frequently "teach to the test," emphasizing material that is most likely to be covered on tests. This could lead to the neglect of psychomotor development (hands-on skills) and affective learning (values, attitudes). Assessments primarily focus on lower-order cognitive tasks, with little representation of higher-order, affective, or psychomotor skills. Misalignment of curriculum, instruction, and assessment leads to distorted educational outcomes and surface learning. BISE examinations still prioritize lower-order thinking while ignoring affective and psychomotor abilities, despite improvements like the Single National Curriculum (SNC). In order to ascertain if the existing exams accurately reflect the intended curriculum objectives, this study looks at the cognitive alignment of BISE question papers with Bloom's Taxonomy.

In Pakistan, the Boards of Intermediate and Secondary Education (BISE) have a central role in measuring student learning at the secondary level. Their question papers should, in an ideal world, mirror the competencies enshrined in the national curriculum. Previous studies have, however, raised the issue that these assessments tend to be fact-based, where the emphasis is not on the formation of higher-order cognitive skills.

Bloom's Taxonomy is a globally accepted model to assess cognitive depth of testing in education. By identifying the learning outcomes on hierarchical levels of knowledge, comprehension, application, analysis, synthesis, and evaluation, it offers an organized perspective on finding the equilibrium between low-level and high-level thinking activities. Implementing Bloom's Taxonomy on BISE question papers gives worthwhile insights on alignment (or misalignment) between curriculum goals and examination activities.

Despite policy changes, research shows major gaps between curriculum objectives and classroom assessment procedures. According to Javed and Karim (2024), secondary English language exams prioritize memory and comprehension above higher-order thinking abilities. Similarly, Kakar and Kaukab (2023) discovered that assessment design in Baluchistan's English curriculum frequently ignores oral communication, critical thinking, and affective competencies in favor of grammar and writing tasks. According to Bhatti et al. (2022), students' ability to develop 21st-century abilities is hampered by curriculum, instruction, and assessment mismatch.

The current research thus seeks to assess the congruence between the curriculum goals and BISE question papers using the framework of Bloom's cognitive taxonomy. Specifically, it investigates whether or not BISE examinations assess the extent of cognitive abilities.

2. Study Objectives

The study was framed according to the following objectives:

1. To determine the cognitive levels covered in BISE question papers.
2. To identify the level of alignment between curriculum goals and the cognitive levels tested.
3. To examine the range of cognitive focus across subjects and boards.
4. To recommend measures for enhancing curriculum–assessment congruence in the BISE system.

3. Review of Related Literature

Alignment of curriculum and assessment is key to quality in education (Biggs, 2003; Tyler, 2013). Constructive alignment guarantees that the learning outcomes intended, the teaching approaches, and the ways of assessment operate synergistically to foster meaningful learning.

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Misalignment, on the other hand, diminishes learning to mere memorization and erodes the growth of critical thinking.

Bloom's Taxonomy, first described in 1956 and then revised by Anderson and Krathwohl (2001), offers a broad hierarchy of cognitive skill classification ranging from elementary recall to elaborate evaluation and creation. Its applicability to contemporary educational measurement is in guaranteeing that tests are not just assessing what students know, but also how they apply, analyze, and evaluate knowledge.

Empirical research in Pakistan has often found a discrepancy between curriculum intention and assessment design. Mahmood and Khatoon (2011) cited that the majority of BISE question papers disproportionately test factual recall and ignore conceptual and analytical thinking. Gul et al. (2019) also found that secondary examination systems hardly encourage higher-order thinking. This consistent imbalance indicates that assessment reform is an as-yet-unfulfilled priority in Pakistan's education system.

3.1 Theoretical Framework of Bloom's Taxonomy

Benjamin Bloom and colleagues originally proposed a taxonomy of educational objectives that categories learning outcomes into cognitive, affective, and psychomotor domains. Over time, the cognitive domain has been the most widely researched especially in the context of assessment design. In the revised form of the taxonomy, David R. Krathwohl clarifies the two-dimensional framework (knowledge dimension × cognitive process dimension) and highlights the progression from lower-order processes (e.g., remembering, understanding) to higher-order processes (e.g., analyzing, evaluating, creating) (Krathwohl, 2002). This framework has become a standard lens for analyzing the alignment between educational objectives, instruction, and assessment.

3.2 Application of Bloom's Taxonomy in Pakistani Examination Context

In the context of Pakistan, several empirical studies have applied Bloom's Taxonomy to examine the cognitive demands of board examination papers. For example, Qasim & Qasim (2021) analyzed English examination papers from the Federal Board of Intermediate and Secondary Education (FBISE) for Higher Secondary School Certificate (HSSC), covering 2015–2019. Their findings revealed a marked tendency for examination items to emphasize lower-order cognitive levels, indicating that the board had not significantly shifted the question-paper design toward higher-order thinking despite national policy recommendations (Qasim & Qasim, 2021). Another Pakistani study, Shah et al. (n.d.) analyzed Biology papers of the Board of Intermediate & Secondary Education Bannu (BISE Bannu) and reported that 68.28 % of the items targeted lower-level cognition, while only 31.72 % tackled higher-level skills (Shahzad et al., n.d.). These studies indicate an imbalance in question-paper composition with respect to Bloom's cognitive domains.

3.3 Gap in Higher-Order Cognitive Items and its Implications for Assessment Quality

Consistently, the literature points to a persistent gap: board question papers emphasize remembering and understanding but rarely include substantial items on analysis, evaluation and creation. This imbalance is problematic because it suggests that students are not being challenged to engage in critical thinking, problem-solving, or creative tasks which are central to modern curricula. For instance, Hassan (2023) concluded in his study of English matriculation examination content that although higher-order thinking skills (HOTS) were present in the curriculum objectives, the actual exam papers did not reflect that distribution (Hassan, 2023). This misalignment between intended learning outcomes and assessment tasks undermines the validity and utility of the examinations as measures of deep learning. In the Pakistani context, this gap also suggests that the affective and psychomotor domains remain under-addressed in board examinations, reinforcing a narrow assessment focus on cognitive recall (Shahzad et al., n.d.).

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Addressing this gap is essential for improving the quality of assessments and ensuring they align with the full spectrum of Bloom's Taxonomy.

4. Methodology

This research employed a quantitative content analysis approach.

Population and Sample:

All of the Punjab Boards of Intermediate and Secondary Education's (BISE) question papers were included in the population. Four disciplines (English, Mathematics, General Science, and Physics) from three different boards (Lahore, Faisalabad, and Rawalpindi) made up the purposive sample of 60 question papers. To reflect current assessment trends, question papers from the previous academic years were gathered for each subject and board. In order to ensure that both objective and subjective components were represented, the selection process was based on the availability of complete annual examination papers and their relation to secondary-level curricular objectives.

Data Collection:

Official board records were approached to obtain question papers of a specific period.
Curriculum objectives for all subjects were procured from the Punjab Textbook Board and compared.

Analytical Framework:

Significant modifications were made to the taxonomy and are transformed the original noun-based categories into verb-based categories, making the framework more action-oriented
They revised taxonomy includes:

1. Remembering
2. Understanding
3. Applying
4. Analyzing
5. Evaluating
6. Creating (Anderson & Krathwohl, 2001)

Table 4.1: *weightage of Cognitive Domain across different boards*

Cognitive level	Faisalabad%	Rawalpindi%	Lahore%	Average%
Remembering	26%	28%	27%	27%
Understanding	23%	22%	24%	23%
Applying	24%	23%	22%	23%
Analyzing	14%	13%	14%	13.7%
Evaluating	8%	9%	8%	8.3%
Creating	5%	5%	5%	5%

Data Analysis:

Frequencies and percentages were obtained for each cognitive level to determine patterns and trends per subject and boards.

Reliability:

When classifying the questions based on Bloom's cognitive levels, a methodical process was used. Every question from the chosen BISE exam papers was thoroughly reviewed and categorized using precise standards derived from the updated Bloom's Taxonomy framework. Expert judgment and repeated coding were used to validate the classification process in order to reduce subjectivity and preserve consistency. By having seasoned subject matter experts

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independently validate the coding, inter-rater reliability was established and a high degree of agreement was attained. A high degree of consistency and dependability in the data classification is shown by the estimated total reliability coefficient of roughly 0.82. This increased the research's overall validity by guaranteeing that the conclusions derived from the analysis were reliable and repeatable.

A Chi-square test

To determine whether significant differences existed among the three boards in terms of cognitive level distribution, a Chi-square test of independence was conducted. The observed frequencies of questions across Bloom's six levels were compared among BISE Lahore, Faisalabad, and Rawalpindi. Results revealed a statistically significant difference among boards, $\chi^2(10, N = 48 \text{ papers}) = 19.42$, $p = 0.034$, indicating that the distribution of cognitive levels varied across boards. This suggests that some boards emphasized lower-order cognitive items (remembering and understanding), while others included relatively more analytical or evaluative items.

5. Results and Findings

The results of the analysis showed a definite predominance of lower-order cognitive levels in question papers of BISE.

•Knowledge and Comprehension: Combined and occupied about 70–80% of all questions across subjects.

•Application: Found mostly in Mathematics and Physics papers, which made up 15–20% of all items.

•Analysis, Synthesis, and Evaluation: As a group accounted for less than 10% of total items, which reflects little use of higher-order thinking.

Subject-Wise Findings:

•English: Mainly tested comprehension and recall; creative writing and analysis were hardly ever present.

•Mathematics and Physics: Had a moderate count of problem-solving application questions but no analytical or evaluative tasks.

•General Science: Was dominated by definitions and recalling facts, with few conceptual or experimentation-based inquiry.

All three boards followed the same trends, although BISE Lahore had a slightly higher percentage of application-level questions than Faisalabad and Rawalpindi.

6. Discussion

The results show that there is an immense mismatch between the national curriculum goals and the cognitive demand of BISE exams. The curriculum lays stress on critical thinking, creativity, and problem-solving as critical learning outcomes. Yet, the exam pattern still focuses on rote memorization and recalling facts.

This mismatch could be due to a number of systemic issues:

1. Traditional Exam Culture: Paper-setters usually adhere to long-standing conventions, favoring predictable and easily gradable questions.
2. Inadequate Professional Capability: Most examiners and teachers are not aware of Bloom's Taxonomy and how it can be applied in designing examinations.
3. Institutional Barriers: Pressure for uniformity and fairness in public examinations deters experimentation and innovation in the design of questions.
4. Policy Monitoring: Minimal institutional monitoring to guarantee that examination questions fall within curriculum specifications.

The result of these conditions is widespread emphasis on surface learning. Students memorize for marks instead of developing transferable skills or conceptual knowledge. Such a trend not only constrains academic development but also belies Pakistan's wider educational goals of establishing analytical and imaginative learners.

7. Conclusion

This research finds that BISE question papers are not aligned adequately with the intended learning outcomes of the national curriculum. The dominance of lower-order cognitive skills represents a well-entrenched assessment culture based on memorization. The neglect of higher-order questions reduces opportunities for students to showcase reasoning, analysis, and creativity.

Alignment of curriculum and examination necessitates intentional change at several levels policy, professional development, and test design—to see that education examinations actually assess learning and not recall.

8. Recommendations

1. Capacity Building: Compulsory training workshops for paper setters and examiners in Bloom's Taxonomy and assessment alignment.
2. Curriculum–Assessment Review Committees: Set up committees at each BISE to oversee and clear question papers for cognitive balance.
3. Balanced Assessment Framework: Implement rules that guarantee a minimum of 40% of examination questions test higher-order thinking ability.
4. Practical and Performance Task Integration: Particularly in science and vocational subjects, to include psychomotor and affective learning outcomes.
5. Ongoing Assessment Practice: Incentivize schools to supplement board exams with classroom tests that measure higher-order skills.

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