An Assessment of Cognitive Domain of Bloom's Taxonomy Use in the Exercises of Grade-V English Textbook

Sharik Zamir

Department of Education, Sukkur IBA University, Sindh, Pakistan
Corresponding Author: sharik@iba-suk.edu.pk

Yasir Mansoor

Department of Education, Sukkur IBA University, Sindh, Pakistan
yasir.bedf18@iba-suk.edu.pk

Abstract

The quality of textbooks has always been a topic of discussion in Pakistan. A textbook is considered the backbone of instruction, therefore, its quality highly affects the teaching and learning processes. The government of Pakistan designed Single National Curriculum (SNC) 2020 intending to provide one curriculum for all systems of education in Pakistan i.e. public schools, private schools, and madrassas. In phase-I, textbooks from grades I-V were developed for different subjects. With the publication of the SNC document, a debate started among publishers throughout the country to revise textbooks across different boards. Since the SNC is a newly introduced initiative of the government, therefore, a knowledge gap exists to analyze the textbook developed under the guidelines of the SNC. This study aimed to examine the exercises of SNC English textbook for grade V prescribed by the Punjab textbook board (PTB). The quality of textbooks was analyzed through different methods. The aassessment of the cognitive domain of Bloom's Taxonomy with the textbook exercises was checked using checklist method. A validated checklist was used to examine the use of cognitive levels of Bloom's Taxonomy of educational objectives in the textbook exercises. The research was descriptive with positivist philosophical paradigm; research method was quantitative, and the tool of inquiry was observation. The frequency of observations in the textbook were assessed against cognitive domain, and recorded in the checklist until completing the last exercise question. The results reported dominance of lower-order thinking skills in the textbook exercises of grade V. The recommendations include that activity-based exercises can foster higher-order thinking in students. Future studies focus on developing observation tools to examine in-class factors which influence students' attainment of higher-order thinking skills in learning.

Keywords: *Bloom's Taxonomy, textbook, exercise, English, cognitive domain*

Introduction

The curriculum document consists of policies, objectives, competencies, standards, benchmarks, and learning outcomes, and above all, lies the goals of a nation. The curriculum is considered vital in achieving national goals (Saeed & Rashid, 2014), as a curriculum facilitates the learning of students, it contains the guidelines and expectations for the teachers and students (Mahmood, 2011). These expectations are written in terms of competencies which are specifically narrowed down to student learning outcomes (SLOs). The SLOs are stated at the beginning of every unit in textbooks, and exercises are developed to assess students' attainment of these learning outcomes (Mahmood et al., 2018). According to Mahroof (2021), textbook alignment with the curriculum is inevitable for the achievement of national goals.

Discoveries in science, modern technologies, business, world politics, mass communication, and global trade have all contributed to an increase in the use of English. As a result, the use of English in education has increased to help individuals communicate at global level. Therefore, English is the medium of instruction in several countries around the world (Baloch & Khatoon, 2019). According to the National Education Policy (2009), in Pakistan from grades one to twelve, English is declared as the medium of instruction. Moreover, Baig et al. (2021) informed that from grades one to fourteen, English is a compulsory subject.

Despite medium of instruction in many institutions in Pakistan, only a small percent of the people can communicate in English. Failure to master the English language can be due to a variety of factors. One of these issues is the use of outdated and poor English textbooks (Baloch & Khatoon, 2019). Therefore, it is pertinent to study the quality of textbooks exercises using assessment technique against the CDBT.

Mastery in English is considered a key to success in Pakistan. At first, English language teaching begins in class six in Pakistan but due to its increasing demand, the teaching of the English language now starts from grade-I. In many institutions, English is not just a subject, but also a medium of instruction. Despite all efforts, the desired outcomes are yet to be achieved (Baloch & Khatoon, 2019). According to Aftab (2012), approved English textbooks in Pakistan are ineffective for language teaching and developing English language skills. Moreover, the desired outcomes of the English language are not fully covered in the textbooks. Akram and Mahmood (2007) claimed that there are various reasons for the failure of English language competency and barriers to achieving desired learning outcomes, such as the use of inappropriate material and outdated books. According to Mahmood et al. (2018), a textbook contains content that is intended to influence learners' behaviors, values, and ideas. However, the material alone is insufficient; end-lesson exercises complement further clarification of information, and allowing students to fully absorb the material. SNC claims that the present English language curriculum is carefully prepared after extensive investigation and discussion with language experts from throughout Pakistan and it is expected that this curriculum serves as guideline for quality teaching in Pakistan. So, this study aimed to analyze the exercises of SNC English textbook for grade V prescribed by the PTB. Hence, this study attempted to answer the following questions:

RQ1:   What different levels of cognitive domain are embedded in the exercises of the SNC English textbook for Grade-V prescribed by the Punjab textbook board?

RQ2:   What differences exist concerning the order of thinking skills in the exercises of the SNC English textbook for grade-V prescribed by the Punjab textbook board?

Literature Review

Textbooks are necessary for the proper implementation of any educational curriculum. These are considered important for the teaching and learning processes

(Mahmood, 2010). According to Baloch and Khatoon (2019), textbooks are the foundation of any educational program. These are an unavoidable part of the lives of both teachers and students. Textbooks are used for various purposes in educational settings. These are used as a guide for the content that should be taught by a teacher and learned by a learner. Textbooks provide teachers with an organized unit of work that helps in designing and implementing lessons and different learning activities for students (Baloch & Khatoon, 2019). According to the national curriculum council (2020), in most schools, the only available learning material is textbooks whereas other teaching aids like libraries and teaching materials are almost absent (p. 83). Baloch and Khatoon (2019) claimed that even though the use of textbooks is highly recommended and desired but total reliance on textbooks and neglect completely of other teaching resources, may cause problems in the teaching and learning processes. This is because it is not necessary that all textbooks completely address the desired outcomes.

Susan et al. (2020) suggested that material used by teachers in teaching and learning processes also affects the achievement of desired learning outcomes just as the subject teacher affects the learning outcomes. One of the most important learning materials used by teachers in the classroom is the textbook. According to Mahmood et al. (2018) in an effective teaching-learning process, textbooks are essential. This suggests that the quality of textbooks has a significant impact on educational outcomes. As a result, to preserve their quality, it is critical to expose them to thorough evaluation and assessment procedures. Appropriate and quality textbooks can help in achieving the desired learning outcomes. Similarly, selecting an inappropriate textbook can cause lots of problems for both teachers and learners. Therefore, the evaluation of textbooks is important so that the desired outcomes can be achieved and the barriers to teaching and learning can be reduced (Baloch & Khatoon, 2019).

Textbook Exercises

Textbooks are usually divided into units, lessons, or chapters. Each chapter mainly has two major parts: content and exercises. The content presents information related to ideas

and concepts, and exercises or activities are used as a tool to assess students' understanding of those ideas. Exercises are expected to reflect the learning objectives stated at the beginning of a unit. Several tasks that students should complete to be active readers of the material are called exercises (Glasnovic Gracin, 2018). According to Assaly and Igbaria (2014), for assessing the level of students' understanding of learning material and thinking level used in the learning process textbook exercises are essential. Bloom (1989) claimed that a particular kind of question leads to a particular kind of thinking. Henningsen and Stein (1997) believed that textbook tasks can influence students' thinking and their understanding of the content. Because it is vital for students to develop higher-level thinking skills, textbook activities are crucial for the development of students' cognitive abilities. Therefore, rather than just imparting knowledge and information to students, textbooks, which offer the foundation for activities to enhance their thinking, must include exercises that stimulate and support HOTS (Assaly & Igbaria, 2014).

For students to think more critically, they should be given questions that need to know more than the facts (Skaker, 1995). According to Darwazeh (2005), we should evaluate a question in light of several factors before deciding whether or not it is a good question. These factors can be the intellectual processes a question engages students in or the level of thinking it promotes. Since textbooks are so important in the teaching and learning processes because textbook exercises influence students' thinking.

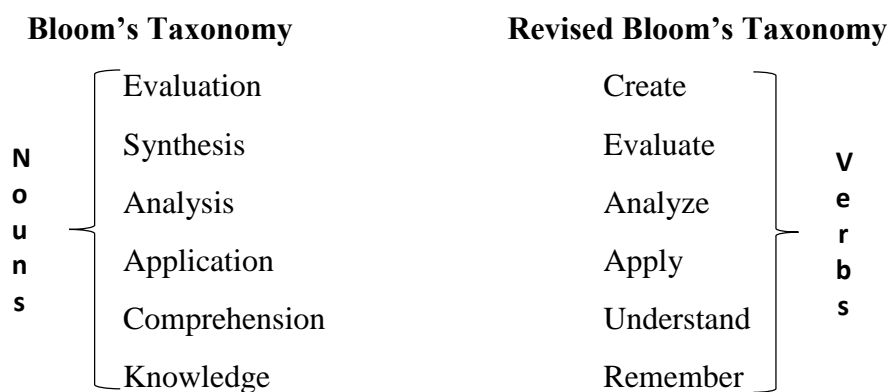**The Cognitive Domain of Bloom's Taxonomy**

The cognitive domain of Bloom's Taxonomy (CDBT) is one of the frameworks used to measure the level of thinking promoted by textbook content. Benjamin Bloom, an educational psychologist, and a group of educators proposed Bloom's Taxonomy (BT) at the beginning of 1956. Since then, this taxonomy has been used as a framework for the teaching process, in particular for the learning objectives, lesson plans, and evaluation (Orey, 2010).

According to Assaly and Igbaria (2014), there are various reasons why BT is frequently utilized in the field of education. One of them is that this taxonomy has an educational focus and can be used to separate groupings of objectives that teachers employ when creating curricula, study programs, and lesson plans.

The BT was developed to make it easier for faculty from diverse universities around the world to exchange test items and build banks of items for evaluating the same educational goals (Mizbani & Chalak, 2017). The main goal was to make sure that learning was more than just a process of memorization and that it led to higher levels of thinking (Hyder & Bhamani, 2016). According to Riazi and Mosalanejad (2010), this taxonomy aimed to make sure that learning objectives were created in a way that would allow teachers to gradually transition students from learning material to applying it in real-world situations and eventually help them derive meaning on their own from that material. This taxonomy provided teachers with a framework for creating learning objectives at even more complex levels of HOTS. Its creation was intended to assist in the development of learning objectives and course outcomes that gradually increase in complexity (Rupani & Bhutto, 2011).

Figure 1

Comparison between Bloom's Taxonomy and Revised Bloom's Taxonomy

Bloom's Taxonomy		Revised Bloom's Taxonomy	
N o u n s	Evaluation	Create	**V e r b s**
	Synthesis	Evaluate	
	Analysis	Analyze	
	Application	Apply	
	Comprehension	Understand	
	Knowledge	Remember	

Note. Adopted from Qasrawi and BeniAbdelrahman (2020).

In the revised BT, the noun representation of each cognitive level has been replaced with a verb; now the categories in the revised Bloom's Taxonomy (RBT) comprise:

remember, understand, apply, analyze, evaluate, and create; moreover, the synthesis level is promoted to the highest level with new name create (Figure 1); similarly, the word evaluation is demoted to second-last level (Qasrawi & BeniAbdelrahman, 2020).

The six stages of the previous CDBT included: knowledge, understanding, application, analysis, synthesis, and evaluation. These levels are used for assessing how well the objectives of students' cognitive domain have been achieved (Hyder & Bhamani, 2016). It also indicates that a learner can advance from the first level to the one that is higher and more challenging than the previous one (Bloom,1964). However, important to note is that Anderson and Krathwohl (2001) modified CDBT and called it a 'taxonomy for teaching, learning, and assessment'.

According to Tomei (2003), one of the most useful theories of instruction and learning is the BT. According to Prakash and Litoriya (2022), This scientific model is regarded as one of the fundamental theories that advances educational programs in the 21st century. According to Andrich (2002), Teachers and education professionals use BT and RBT as a fundamental and necessary instructional tool for developing structure learning practices to achieve positive academic results. In various studies, BT has been used to evaluate the contents of different textbooks in the world (Mizbani & Chalak, 2017). The details of the cognitive domain levels of the RBT are scribed below:

Remember

Students are at the remembering level of the cognitive domain when the focus is to encourage retention of the material delivered in the same manner as it was taught or when retrieving important information from long-term memory is required (Radmehr & Drake, 2019). Anderson and Krathwohl (2001) claimed that there are two main cognitive processes at this level which are recognizing and recalling. Locating information in long-term memory that is congruent with the material presented is the process of recognizing (identifying). When students are required to retrieve information from long-term memory it is called

recalling. According to Virranmäki et al. (2020), the typical vocabulary for action verbs in remember includes: recognizing, identifying, recalling, retrieving, relating, matching, and reproducing.

Understand

According to Armstrong (2016), when students can create meaning from instructional messages, it is considered that they have understood the material or concept taught. At the understanding level of the cognitive domain, students make connections between the new information they are learning and what they already know. According to Anderson and Krathwohl (2001), the cognitive processes at this level are: 1) interpreting: when students convert information from one form of representation to another it is called interpreting. Other action verbs for this cognitive process are translating, clarifying, paraphrasing, or representing. 2) exemplifying: when students can provide an example of something it is called exemplifying also known as illustrating or instantiating. 3) classifying: when students can categorize items with their relevant parts it is called classifying also known as subsuming. 4) summarizing: when students create a brief statement that reflects the given material it is called summarizing. Other action verbs are abstracting or generalizing. 5) inferring: it is about forming a conclusion about the given material. Also called extrapolating, predicting, concluding, or interpolating. 6) Comparing: it involves identifying similarities and contrasts between two or more things. It is sometimes referred to as contrasting, mapping, or matching. 7) explaining: when students can create a cause-effect relation, this is called explaining. Virranmäki et al. (2020) mentioned the following list of words for the understanding level: clarifying, paraphrasing, representing, translating, illustrating, instantiating, classifying, categorizing, subsuming, comparing, demonstrating, explaining, contrasting, mapping, matching, inferring, interpreting, concluding, extrapolating, interpolating, predicting, summarizing, abstracting and generalizing.

Apply

Apply is strongly related to procedural knowledge. Apply means employing procedures to carry out exercises or resolve a problem. Exercises refer to tasks for which students are well aware of the procedure knowledge to use and the situation is familiar. A problem means a task for which students are not well aware of the procedure knowledge and the situation is unfamiliar. Executing and implementing are the two cognitive processes that make up the apply category (Radmehr & Drake, 2019). When a student applies a technique to a routine task it is called executing. When a student applies a technique to an unfamiliar task it is called implementing or using (Anderson & Krathwohl, 2001). The list of vocabulary for application as stated by Virranmäki et al. (2020) includes: executing, carrying out, implementing, and using.

Analyze

Crompton et al. (2019) stated that analysis includes disassembling a piece of information into its component pieces and figuring out how those parts relate to one another and the structure as a whole. According to Anderson and Krathwohl (2001), the analysis includes the cognitive processes of attributing, organizing, and differentiating. When a learner can identify the biases, points of view, and values, in a given material, it is called attributing or deconstructing. When students separate relevant information from irrelevant information or vital information from insignificant information in provided material, they are differencing. Organizing entails figuring out how pieces fit or work within a structure (Krathwohl, 2002). The list of words for this level stated in the research of Virranmäki et al. (2020) is differentiating, distinguishing, focusing, selecting, organizing, finding coherence, integrating, outlining, parsing, structuring, attributing, deconstructing, and discriminating.

Evaluate

Armstrong (2016) mentioned that making decisions based on standards and criteria is referred to as evaluation. He further added that the criteria can be developed by students or

provided to them by others. According to Krathwohl (2002), checking and critiquing are the two cognitive processes of this level. When students critique, they use either established or student-determined standards and criteria to evaluate the merits of a process or product. Checking is noticing discrepancies or errors in a process or product, identifying inconsistencies, or assessing the efficacy of a technique (Anderson & Krathwohl, 2001). Other action verbs for checking are coordinating, detecting, monitoring, or testing. Virranmäki et al. (2020) provided the following list of words for this level: testing, monitoring, detecting, coordinating, checking, detecting critiquing, and judging

Create

Creating includes putting elements together to form something new. Students at the creative level use previously learned knowledge and use it to develop something new (Radmehr & Drake, 2019). The key skills at this level as mentioned by Anderson and Krathwohl (2001) are: generating, producing, and planning. Creating new hypotheses based on criteria is known as generating (sometimes referred to as hypothesizing). A problem is described to a student at this level and they are required to come up with potential solutions. inventing a product is a component of producing, also known as constructing. A student who is creating must provide a final product that satisfies a functional description of the goal. Designing, which is another word for planning, entails coming up with a strategy for carrying out a job. When presented with a problem, a student designs a solution strategy during planning. The vocabulary for create given by Virranmäki et al. (2020) comprises: designing, gathering, hypothesizing, planning, producing, generating, and constructing. BT is also utilized for analyzing the use of action verbs or applying the use of action verbs in the English textbook for grade-V prescribed by the PTB. According to Pinner (2013), the application of the cognitive domain is divided into the higher order thinking skills and the lower order thinking skills.

Higher-order Thinking Skills

The six levels of BT are divided into two categories by researchers. The upper three levels—analyze, evaluate, and create are called the higher-order thinking skills (HOTS), and the lower three levels—remember, understand and apply are called the lower-order thinking skills (LOTs) (Table 1). HOTS are referred to as productive behavior or reasoning (Lewis & Smith, 1993). In many countries, HOTS has become the main focus of the curriculum (Yusoff & Seman, 2018). Studies suggested that HOTS are crucial for fostering lifelong learning, which enables students to successfully meet the demands of the 21st century (Rentawati et al., 2018). HOTS allow students to work on problems or issues that require critical thinking, problem-solving, and higher cognitive abilities. HOTS are crucial in developing good thinking abilities in students. Teachers should encourage students to use HOTS to equip the next generation to handle the demands of the 21st-century workforce (Kamarulzaman et al., 2017). HOTS enable Students to produce new concepts and possibilities by using ideas, data, and information in a new manner (Purnomo, 2019). According to Barut and Wijaya (2021), the development of logical and critical thinking, which are essential for daily living, is promoted by the acquisition of HOTS. Students with HOTS are proficient at solving problems, more confident in their ability to learn, and more successful in dealing with non-routine problems.

Table 1

HOTS and LOTS in The Cognitive Domain of Bloom's Taxonomy

Higher Order Thinking Skills	Lower Order Thinking Skills
Analyze	Remember
Evaluate	Understand
Create	Apply

Note. Adopted from Pinner (2013).

Lower Order Thinking Skills

The LOTS are classified as learned behaviors or reproductive thinking (Lewis & Smith, 1993). According to Barut and Wijaya (2021), LOTS are regarded as being core and

crucial since they aid students in creating a coherent thought process, learning about a variety of subjects, and effectively applying their knowledge. While HOTS ask pupils to evaluate, analyze, or manipulate information, LOTS are used to transmit fundamental or factual knowledge (Apino & Retnawati, 2017; Saido et al., 2018). Even though the development of HOTS in students is desirable and instructions and material should be designed to promote HOTS the importance of LOTS should not be neglected. Numerous studies suggested that the development of LOTS in a child is as important as the development of HOTS (Indillah, 2020; Barut & Wijaya, 2021; Apino & Retnawati, 2017). Moreover, studies have also demonstrated the importance of LOTS in establishing a solid foundation for the use of HOTS. According to Indillah (2020), it is crucial to confirm that students have mastered LOTS as doing so is a requirement for applying HOTS.

Table 2

The Cognitive Processes Dimension-Categories (and alternative names)

Lower order thinking skills				higher order thinking skills	
Remember	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
recognizing (identifying)

recalling (retrieving) | interpreting (clarifying, paraphrasing, representing, translating)

exemplifying (illustrating, instantiating)

classifying (categorizing, subsuming)

summarizing (abstracting, generalizing)

inferring (concluding, extrapolating, interpolating, predicting)

explaining (constructing models) | executing (carrying out)

implementing (using) | differentiating (discriminating, distinguishing, focusing, selecting)

organizing (finding coherence, integrating, outlining, parsing, structuring)

attributing (deconstructing) | checking (coordinating, detecting, monitoring, testing)

critiquing (judging) | generating (hypothesizing)

planning (designing)

producing (construct) |

Note. Adopted from Radmehr and Drake (2019)

According to Barut and Wijaya (2021), it is crucial to remember that to perform at a higher level, one must first master cognitive processes at a lower level because one cannot create an opinion or evaluate something without knowing the facts, interpreting the facts, and applying them. The discussion can be summarized with the help of the above information (Table 2). This table represents the six levels of RBT in their proper order and under each level, cognitive processes of those levels are mentioned along with their alternative names and the categorization of the levels of BT into LOTS and HOTS (Radmehr & Drake, 2019).

Indigenous Studies on Textbook

Mahmood (2010) researched analyzing textbooks in which he analyzed eight textbooks of science and mathematics for grade III of different public and private publishers in Pakistan. The bases for analyses were four parameters of textbook evaluation; the finding showed that the exercises in those textbooks mostly focused on lower cognitive levels. Similarly, Baig et al. (2021) analyzed the English textbook for grade-VIII of the Punjab textbook board. The purpose of this analysis was to examine SLOs mentioned in the curriculum based on four competencies of English. For this study, the researcher used a checklist as a data collection tool; they found that the SLOs mentioned in the curriculum and the higher levels of BT—analysis, synthesis, and evaluation were not completely reflected in the textbook. More recently, Mahmood et al. (2018) carried out mix-method research using in-depth study and question analysis techniques to analyze the English textbook for grade-I of the federal board of Pakistan. The study aimed to analyze the exercises of the textbook according to the BT, which included finding the order of levels of BT in the textbook, identifying the existing and missing domains, and finding the alignment between the exercises and content of textbook. The results showed that although all levels of the CDBT were present, their order was random, and the content and exercises were also misaligned. Susan et al. (2020) conducted a descriptive-analytical study in Indonesia. In their study, the

exercises of the grade-X English textbook 'Bahasa Inggris' were analyzed. The focus of their study was to assess the compatibility of the exercises of that textbook with the relevant curriculum and with BT. They also analyzed the compatibility between the curriculum and BT. The findings suggested that the exercises were compatible with the curriculum and the exercises were arranged according to the levels of BT. While in Jorden, Abdelrahman (2014) analyzed the questions of grade-X English textbooks using a checklist based on BT. The results showed that most questions were reflecting the first two levels of BT i.e. remember and understand. A total of 655 questions were analyzed of which 12.36% questions were of remembering level, and 42.75% questions were of understanding level. 16.18% of questions were of apply level. Questions for analysis level were 13%. Evaluation questions were 6.26% while questions for creating level were 9.5%. These studies on textbook evaluation focused on the textbooks of the secondary and higher secondary levels while few studies focused on the primary level. Furthermore, the studies conducted in Pakistan evaluated textbooks developed in the light of the National Curriculum (2006). However, there was no study found on the assessment of textbooks based on SNC. Hence, through this study, an attempt was made to assess the alignment of the exercises of SNC English textbook for grade-V prescribed by the PTB with the cognitive domain of BT.

Research Methodology

The "research onion" framework proposed by Saunders et al. (2016) is an effective strategy for creating a research methodology. According to Raithatha (2017), The research onion gives a thorough explanation of the steps that must be completed in order to develop an effective technique. Each of the six layers of the research onion—philosophy, approach, methodological choice, strategy, time horizon, and technique—represents a distinct aspect of the study. Saunders et al. (2019) assert that when selecting a methodology, one has to go from the outer layer to the inner layer. In this study, the philosophical stance is positivist.

Positivism is a method of analyzing society that solely relies on empirical scientific evidence, such as carefully monitored experiments and statistics.; a positivist thrives to provide quantitative explanations of how different variables interact with each other, affect processes, and form outcomes (Donald et al., 2010). It is a systematic method to combine deductive logic and empirical data (Neuman, 2003). That is why the research approach is deductive and the methodological choice is quantitative. The quantitative method was used because it focuses on the quantity or breadth of data. According to Leavy (2017), acquiring and analyzing data that can be expressed as numbers is the main focus of quantitative research methodologies. In this study, the SNC English textbook for grade-V prescribed by the PTB was analyzed. For this purpose, a quantitative content analysis research strategy was used. According to Johansson (2020), using systematic classification to reach conclusions about the content of a document is called content analysis. The content analysis research strategy was used because the study aimed at presenting the number of exercises aligned with each level of the CDBT. The data were collected from one book of grade V only once, hence, the time horizon was cross-sectional and the technique used for data collection was a checklist.

Data Collection Tool

The data collection was achieved through the development of an observation sheet used as an evaluative framework for textbook analysis. McGrath (2002) proposed three common textbook evaluation methods: 1) the impressionistic method which is a surface-level evaluation of the textbook in which a quick overview of the book is given by the evaluator just by looking at some features of the textbook; 2) the checklist method wherein a checklist is developed for the evaluation of the textbook. The checklist contains some items, and the evaluator checks the presence or absence of those items in the textbook. The checklist method is very effective because it is organized, low-cost, and easy to use (Baloch & Khatoon, 2019); 3) in the in-depth method, a thorough evaluation of the textbook is

conducted. In this study, the checklist method was used for grade-V English textbook analysis from the perspective of BT. The checklist was adapted from the work of Mayer (2002). A few modifications were made to the checklist to make it suitable for use in this study. Levels of RBT with action verbs were added to the checklist. One row was added for questions, and one column was added for names and numbers of exercises. The checklist was comprised of three parts. In the first part, the heading, name, and number of exercises were given along with the questions given in the exercises. In the second part, key action verbs were written for each level of taxonomy and in the third part, six levels of the cognitive domain of BT were mentioned with abbreviations corresponding to levels such as R, U, A, An, E, and C for remember, understand, apply, analyze, evaluate, and create respectively in six separate columns.

Data Collection Procedure

The data were collected from grade-V English textbooks prescribed by the PTB based on SNC. This study was desk research which required the collection and collation of data from the textbook, hence, the sample for this research was comprised of all exercises from the grade-V English textbook.

Data Analysis

For each level of cognitive domain on BT, there is a list of specific action verbs. So, for analyzing textbook exercises, keywords or the meanings in the questions of the exercises were identified. The textbook comprised of 14 units, and there were 351 questions in all units. The textbook was divided the questions of each unit into four sections. These sections were: a) oral communication, b) reading and critical thinking, c) language focus, and d) writing. These sections were further divided into different sub-sections. The questions under these sections included short question-answer, fill-in-the-blanks, matching columns, making sentences, writing paragraphs or brief essays on different topics, group discussions and role-

play exercises. Each question was read carefully and analyzed for its corresponding level of cognitive domain through the help of a checklist. Specific keywords or action verbs were identified in those questions to insert data into the checklist. After that, the questions were classified according to their level of the cognitive domain.

Results

This study aimed to assess the exercises of the grade-V English textbook based on SNC prescribed by the PTB. In response to the first research question, the analysis of questions in the exercises informed that more than half of the exercises in the English textbook were found to be at remember level (Table 3). In other words, out of 351 questions, 193 almost 55% of questions in the textbook were found at the remembering level of the cognitive domain. The second most dominant cognitive level in the exercises was understanding. There were a total of 91 (26%) questions based on understanding level. The number of questions found at the apply level was 58 (17%).

Table 3

The Alignment of English Textbook Exercises with the Cognitive Domain of Bloom's Taxonomy

Unit	Remember	Understand	Apply	Analyze	Evaluate	Create	Total
1	19	5	2	0	0	0	26
2	13	15	4	1	0	1	34
3	13	3	3	0	0	0	19
4	11	8	5	1	0	0	25
5	9	8	5	0	0	0	22
6	14	5	4	1	0	0	24
7	13	8	5	0	0	0	26
8	13	3	7	0	0	0	23
9	18	7	3	0	0	1	29
10	18	6	1	1	0	0	26
11	9	9	5	0	0	0	23
12	15	4	7	0	0	0	26
13	16	3	4	1	0	0	24
14	12	7	3	0	0	2	24
Total	193	91	58	5	0	4	351

Only 5 (1%) questions were found at the analysis level of the cognitive domain. The analysis indicated that there were no questions asked about the evaluation level, and there were only 4 (1%) questions related to the highest level, create, of the cognitive domain.

The results suggest that exercises in grade-V textbooks are dominated by remember and understand levels, and partially dominated by the apply level of the CDBT. This alludes to the other levels of the cognitive domain which received no attention from the textbook developers. It is noticeable that remembering levels remain dominant throughout the textbook. In every unit, there are more questions of remembering level than any other level, except in unit 2 where there are more questions of understanding level. The dominance of lower levels of BT remains the same in every unit. We can see that even in the last units of this textbook—11,12,13,14 lower levels of BT were given more weightage.

The results for the second research question classified information about the thinking skills found in the textbook based on the cognitive domain of BT. The analysis informed that a large number of questions in the textbook represented LOTS. There were 342 questions related to LOTS whereas only 9 questions were related to HOTS. This means almost 97% of questions from the exercises of the SNC grade-V English textbook prescribed by the PTB promote LOTS, and only 3% of questions in the textbook promote HOTS.

Table 4

Thinking order promoted by English textbook exercises.

	Lower Order Thinking Skills			Higher Order Thinking Skills		
Level of RBT	Remember	Understand	Apply	Analyze	Evaluate	Create
No. of Questions	193	91	58	5	0	4
Total	342			9		

The results for LOTS and HOTS indicate a contrastive scenario where LOTS receive more attention, hence, more representation in the textbook, whereas the least consideration is given

to HOTS. So, the ideal balance between LOTS and HOTS is still in oscillation, which is open for further discussion, and thoughtful deliberations from the textbook board.

Discussion

This study aimed at finding the levels of CDBT present in the exercises of the grade-V English textbook and to find the thinking skills promoted by this textbook. The results of this study reported that concerning the cognitive domain reflection in the textbook, most of the exercises in the Grade-V English textbook belong to the cognitive level of remember, some exercises indicated Understand and analysis and very few questions are found to apply and create level. While no question is found of evaluate level. These results suggest the dominance of the lower levels of BT i.e., remember, understand, and apply in the textbook and neglection of higher levels. For the thinking order the results indicated that this textbook promotes lower-order thinking because the analysis of the questions in this textbook shows that most of the questions are of LOTS while few of them are of HOTS.

The results of the first research question reported that remembering as the most dominant level of cognitive domain promoted through the use of exercises from the textbook. This level alone contributed to more than half EQs (EQs) in the textbook. This alludes to educational gains standing at the lowest level in terms of English textbooks as used by teachers in the primary grade. This outcome restricts students' outcome to retrieve (Radmehr & Drake, 2019), recall, and recognize information (Anderson & Krathwohl, 2001). With this result, only surface-level knowledge can be achieved which is useful for early graders, however, for high graders this level along with other levels is equally important. Moreover, a quarter of questions corresponded to the understanding of BT, which signifies that EQs promote less understanding, and lower, and few higher levels of cognitive domain suggesting to foster meaning-making (Armstrong, 2016). Around half of a quarter, EQs reflected apply level, which indicates the techniques of implementation of unfamiliar tasks, and execution of

routine tasks (Anderson & Krathwohl, 2001). These EQs can also test procedural knowledge and indicate procedures to solve a problem, however, the dispersion of apply-level questions is scanty. A negligible number of EQs represented analyze which indicates a deprivation of experiences regarding fragmenting information into small chunks (Crompton et al., 2019). Furthermore, the absence of evaluate level questions in the EQs raise a concern that students would receive a little experience in decision-making based on analyzing and critical thinking (Armstrong, 2016). These findings corroborate the studies of Baig et al. (2021) and Mahmood (2010) which stated that the exercises of English textbooks from various boards of Pakistan reflect lower-order thinking levels of the CDBT. Regarding the level of the cognitive domain, the textbook based on SNC is similar to previous English textbooks as those textbooks also promoted lower levels of the BT.

The high roar over the importance of HOTS across curricula is undeniable (Lewis & Smith, 1993). However, the cognitive levels of BT showed asymmetry weightage across the units of textbooks and indicated more LOTS than HOTS. LOTS foster seminal factual knowledge significant for students' cognitive development setting a baseline for the promotion of HOTS (Indillah, 2020). The EQs tilt toward LOTS suggests the involvement of low-level mental processes which are essential, but HOTS representation in EQs requires more mental energy and provides more opportunities to handle real-life situations. These contrastive accounts HOTS and LOTS denote inequality in EQs, which can produce less favorable SLOs. Therefore, without HOTS, the skills of reasoning, lifelong learning, problem-solving, conceptualizing, and logical and critical thinking (Lewis & Smith, 1993; Rentawati et al., 2018; Barut & Wiyaya, 2021) would become impossible.

Practical Implications

The newly published textbook exercises provide meaningful insights for textbook developers, and teachers. The exercise developers need to consider the fair inclusion of items

from all levels of the CDBT. The absence of HOTS in EQs necessitates focusing on teachers'

training as to how textbook exercises can be used to achieve desired SLOs. A teacher needs

to exert extra effort in planning to teach in a way to foster students' higher-order learning

experiences as relying merely on textbooks would yield limited student outcomes. Finally,

the findings also recommend that the exercises of this textbook need revisions to offer more

student engagement for ensuring HOTS.

Conclusion

The purpose of this study was to assess EQs for their alignment with the cognitive

domain of BT. A textbook promoting LOTS shows a caveat that alludes to a significant gap

in students' learning. This may develop a gap in students' learning which may lead them to

face challenges in the practical world where skills speak more than knowledge. A close

examination of the textbook exercises concludes that the English textbook for grade five was

developed on SNC guidelines reflected more factual level EQs, and indicated an imbalance

approach toward cognitive levels of BT. The results suggest a need for revising the textbooks

in their development phase to include the utilization aspect of all levels of the CDBT. The

dominance of LOTS in EQs calls for either judicious planning and activities for bridging the

student learning gap or professional development opportunities for teachers. However,

teachers who believe in self-help can equate the difference between LOTS and HOTS as with

intrinsic-motivation difficult task of student learning can turn into a lively learning

experience that lasts more than adopting merely the formal approach. Furthermore, the least

adherence to HOTS in the EQs makes it difficult to achieve the aim of SNC for developing

students' critical thinking and analytical skills. While this study used the checklist method to

examine textbook exercises future studies may use an in-depth analysis of qualitative

measures to explore the contents within the textbooks. Further researchers may uptake

observation tools to examine the in-class factors to explore teacher-related activities and

student-related activities, and assessment to seek a deep understanding of the cognitive

domain in real-time during teaching and learning processes.

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