



THE EXTENT OF THE REVISED BLOOM'S TAXONOMY IN THE READING COMPREHENSION QUESTIONS OF THE COURSE BOOK COVER TO COVER 3 FOR READING COMPREHENSION AND FLUENCY (Araştırma Makalesi)

Yusuf KASİMİ (*)

Abstract

The revised Bloom's taxonomy is a cognitive process model measuring learners' comprehension levels through the use of filtered terms. The revised taxonomy is the refurbished form of the former Bloom's Taxonomy dating back to 1956, which analyzed cognitive skills. Modifications in concepts, system, format and prominence are involved in the revised model. The revised Bloom's taxonomy covers two learning domains that constitute instructional objectives: cognitive (knowledge) and affective (attitude) and underlines six levels: remember, understand, apply, analyze, evaluate and create. The verbs highlight the cognitive practices that learners confront and the knowledge they facilitate. For example, an action included in the "remember" level may demand learners to call up the acquired knowledge while a verb included in the "create" level may demand learners to carry out an efficacious project. Thus, this study aims at discovering to what degree the revised Bloom's taxonomy is referred in the reading questions of a globally written EFL reading course book. On the grounds of the mentioned dimensions, two research questions were developed to reach answers to cognition levels in the taxonomy. The initial research question focused on assessing the lower order while the next one aimed at measuring the higher order cognition level in the related reading comprehension questions. The contained EFL reading course book was examined by means of descriptive content analysis technique. The findings of the study clarified that the evaluated reading course book is deficient in the higher level cognitive domain highlighted in the revised taxonomy. Accordingly, some assumptions have been made to suggest how the reading course books which are being produced or will be produced should hint on the revised taxonomy in their reading questions.

Keywords: Cognitive skills, Taxonomy, The revised Bloom's taxonomy, Reading skills, Reading comprehension assessment.

*) Dr. Öğr. Üyesi, Düzce Üniversitesi, Yabancı Diller Eğitimi Bölümü, İngiliz Dili Eğitimi Ana Bilim Dalı, (e-posta: yusuf_kasimi@yahoo.com), ORCID ID: <https://orcid.org/0000-0002-0766-5588>

Cover to Cover 3 for Reading Comprehension and Fluency Ders Kitabının Okuduğunu Anlama Sorularında Yenilenmiş Bloom Taksonomisinin Kapsamı

Öz

Yenilenmiş Bloom Taksonomisi özel kavramlar yoluyla öğrencilerin anlama düzeylerini ölçen bilişsel bir süreç modelidir. Yenilenmiş taksonomi, 1956 yılına dayanan ve bilişsel becerileri analiz eden eski Bloom Taksonomisinin yenilenmiş şeklidir. Değişiklikler kavram, sistem, format ve önem boyutlarında yenilenmiş modelde yer almaktadır. Fiiller, öğrencilerin karşılaştığı bilişsel uygulamaları ve kolaylaştırdıkları bilgileri vurgular. Örneğin, “hatırlama” düzeyinde yer alan bir eylem, öğrenciden edinilen bilgiyi çağırma talep edebilirken “yaratma” düzeyinde yer alan bir fiil, öğrenciden etkili bir proje yürütmesini talep edebilir. Bu nedenle, bu çalışma, küresel olarak yazılmış bir İngilizce okuma ders kitabının okuma sorularında yenilenmiş Bloom taksonomisine ne ölçüde atıfta bulunulduğunu keşfetmeyi amaçlamaktadır. Bahsedilen boyutlar temelinde, taksonomideki biliş düzeylerine ne ölçüde yer verildiğini anlamak için iki araştırma sorusu geliştirilmiştir. İlk araştırma sorusu bilişsel düzey alt basamakları değerlendirmeye odaklanırken, bir sonraki soru, ilgili okuduğunu anlama sorularında üst düzey biliş becerileri ölçmeyi amaçlamıştır. İngilizcederskitabibetimselicerikanaliziteknikiileincelenmiştir. Araştırmanın bulguları, değerlendirilen okuma ders kitabının yenilenmiş taksonomide vurgulanan üst düzey bilişsel alandan yoksun olduğunu ortaya koymuştur. Buna göre, üretilmekte olan veya üretilecek olan okuma ders kitaplarının okuma sorularında yenilenmiş taksonomisine ne ölçüde yer verilmesi gerektiği konusunda bazı varsayımlarda bulunulmuştur.

Anahtar Kelimeler: *Bilişsel beceriler, Taksonomi, Yenilenmiş Bloom Taksonomisi, Okuma becerileri, Okuduğunu anlama değerlendirmesi.*

1. Introduction

Taxonomy, which is defined as a framework that allows the classification of cognitive skills expected from students at the end of teaching, is a hierarchical classification in its original form (Paleeri, 2015). Taxonomies should be designed in accordance with students' needs (Ulum, 2015a; Ulum, 2016a; Ulum, 2020a; Ulum, 2020b). Accordingly, the steps in taxonomy are in order from simple to complex, from concrete to abstract, and its one simple step is a prerequisite for a more complex one (Eskridge, 2010). Accordingly, the original taxonomy consists of the main steps of Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation, and all the main steps have sub-steps except Application (Ernawati & Baharullah, 2020). The taxonomy, which has been criticized for various reasons, was renewed in 2001 and underwent radical changes (Gul, Kanwal, & Khan, 2020). Part of the criticism of the original taxonomy, published in 1956, is its one-dimensional classification of cognitive processes from simple to complex (Kadiyala, Gavini, Kumar, Kiranmayi, & Rao, 2017). The idea that lower-level goals must first be achieved in order to achieve a higher-level goal has been criticized as a strict rule (Thote

& Gowri, 2020). In addition, criticisms have come to the fore that the level of evaluation is not more complex than the level of synthesis and even that the synthesis includes evaluation (Gichuhi, 2014). The revision of Bloom's Taxonomy was carried out by his colleagues, student, and other notable scientists (Pakpahan et al., 2021). Two reasons are suggested for this renewal. The first one is to try to get educators to refocus on the original taxonomy. Because this taxonomy is not just a historical document, it contains many ideas about design, implementation, standards-based learning and original assessment problems applied today (Newton, Da Silva & Peters, 2020). The second reason is that the developments in the USA and the world since 1956, the development of psychology, teaching methods and techniques, measurement-evaluation need to be combined with this taxonomy (Kumar, Chowdhry & Kazi, 2018). Accordingly, the new taxonomy consists of two dimensions. In the knowledge dimension, the knowledge that constitutes the vertical dimension in the taxonomy consists of four main steps. These are factual, conceptual, procedural and metacognitive knowledge (Kamlasi, 2018). Factual knowledge is a set of knowledge involving elements of different, separated content. Conceptual includes knowledge of certain details and items. Conceptual knowledge involves more complex and organized forms of knowledge (Bhagyalakshmi & Seshachalam, 2015). It includes knowledge on classifications, categories, principles, generalizations, theory, structure, and models. Procedural knowledge is knowledge about how to do something. Skills and algorithms, methods and techniques are knowledge about criteria (Attia, 2021). Finally, metacognitive knowledge is knowledge about cognition. It is about an individual's awareness of their own cognition. Strategic knowledge includes knowledge about cognitive tasks, contextual and conditional knowledge, and self-knowledge (Waite, 2020). Cognitive processes, which form the horizontal dimension of the taxonomy, focus on 19 specific cognitive activities. In the original taxonomy, the level, which was called the knowledge step, was named as remembering, understanding the conceptual step, analyzing the analysis step, and creating the synthesis step (Amer, 2006). One of the criteria for naming the steps is to choose the terms that teachers use while working. Implementation and evaluation steps retain their names; however, evaluation and synthesis steps were replaced; two sub-steps were added to the application step (Kalasuramath et al., 2015). The verb form was used completely in naming the main and sub-steps. While the original taxonomy focused on the main steps, the revised taxonomy focused on sub-levels, and more importantly, the cumulative hierarchical classification feature of the taxonomy was stretched (Forehand, 2010). It can be said that the revised taxonomy also consists of a certain hierarchy, but this hierarchy is not as rigid as in the original. The problem of goals in education is a topic that has been discussed for years. Why are goals classified? Classification gives educators the opportunity to examine goals and what students should know, and what they should do in order to achieve a certain goal (Irvine, 2017). Classification of objectives allows considering a panorama of educational possibilities. This is one of the core values of the original taxonomy. The revised taxonomy also evaluated the possibilities that highlight knowledge. Metacognitive knowledge

empowers students and is important for the foundation of learning to learn. In short, using taxonomy helps us reach the learning questions (Hyder & Bhamani, 2016). Classifying goals with this model allows educators to see the holistic relationships between knowledge and cognitive processes in goals. Can students be expected to apply factual knowledge? Would it be easier for them to understand procedural knowledge before applying it? Can they learn to understand conceptual knowledge while analyzing factual knowledge?" Questions like these are teaching questions. Goals are classified to make life easier (Oscarini & Bhakti, 2010). When taxonomy is used, evaluators do not have to treat each objective as a single entity (Skiba, 2013). Instead, they decide how to measure this goal by knowing what cognitive level the goals are. Thus, they form their own patterns and make changes according to the subject (Krishnan, 2019). Evaluation questions can be overcome by classifying the objectives. In addition, with taxonomy, the teacher can think that this goal is at the level of understanding conceptual knowledge and she knows how to teach conceptual knowledge goals, she can focus on the critical points of the concept, she can find examples and non-examples for many types of conceptual knowledge, and she can distinguish and discuss the place of a concept in a general concept (Churches, 2008). Similar plans can be made for evaluation. Further, she can design measurement situations that ask students to classify and exemplify. In short, classification of objectives helps us answer teaching and assessment questions (Choudhary & Raikwal, 2014). Taxonomy allows us to easily see consistency or inconsistencies in planning. It allows us to determine a set of targets for a unit, how it is taught and evaluated, and whether there is integrity between them. 19 cognitive processes have very specific meanings (Reddy, Chugh & Subair, 2017). Explaining, interpreting, organizing, executing, criticizing, generalizing etc. jobs involve subtle nuances. With this model, the terms are separated, thus creating a better communication environment (Bümen, 2010). Therefore, this study aims at exploring to what extent the revised Bloom's taxonomy is involved in the reading comprehension questions of a globally written EFL reading textbook.

1.1. Purpose of the Study

The aim of this paper is to inquire the state of cognitive levels included in the reading comprehension questions in an EFL reading course book. In a similar vein, this study aims at identifying whether any weaknesses or strengths exists in the reading comprehension questions or not, with respect to including the lower and higher order cognitive skills highlighted by the revised Bloom's taxonomy. Thus, the following research questions were put forward:

(1) To what extent do the reading comprehension questions in the EFL Reading course book *Cover to Cover 3 for Reading Comprehension and Fluency* include the lower order cognitive levels suggested by the revised Bloom's taxonomy?

(2) To what extent do the reading comprehension questions in the EFL Reading course book *Cover to Cover 3 for Reading Comprehension and Fluency* include the higher order cognitive levels suggested by the revised Bloom's taxonomy?

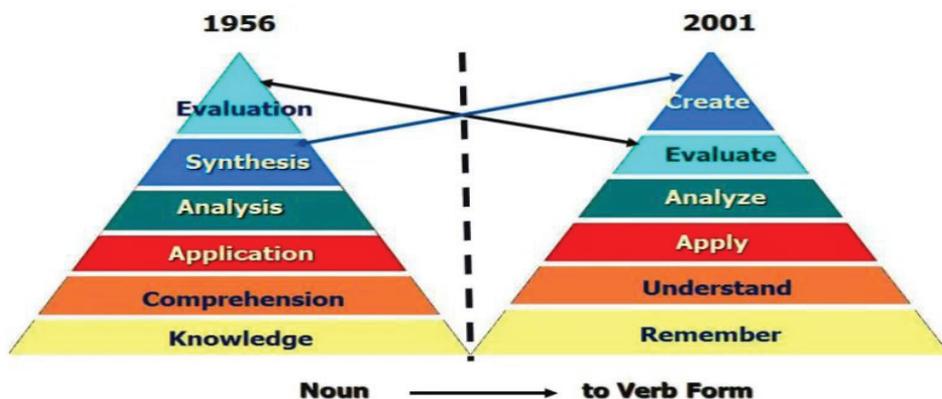


Figure 1. Bloom's Taxonomy revised (Wilson, 2001).

1.2. Significance of the Study

This research paper examines the reading comprehension questions utilized in an EFL reading course book and aims to define the frequency of lower and higher order cognition levels suggested by the revised Bloom's Taxonomy in order to clarify ways which may support course book authors prepare qualified course books accordingly. Further, the findings of the study will be of great help for educators to be prolific at modifying the reading comprehension questions based on the revised Bloom's Taxonomy. Moreover, the results of the study will contribute to EFL/ESL settings.

1.3. Limitations of the Study

Foreign or second language teaching, as well as education in general terms, ought to contain both lower and higher order cognitive levels suggested by the revised Bloom's taxonomy to equip students with the required cognitive skills (Assaly & Smadi, 2015). In this research paper, the revised Bloom's Taxonomy was utilized to examine the reading comprehension questions in a reading course book used commonly in EFL/ESL settings. However, this research study is limited to an EFL reading course book. The data collected in the study did not refer to the issue by employing other EFL/ESL reading course books.

2. Methodology

This study employs a descriptive content analysis method to define the extent of the high and low order cognitive levels suggested in the revised Bloom's taxonomy. In a similar vein, the cognitive domains clarified in the revised Bloom's taxonomy were used while grouping the reading comprehension questions of an EFL reading course book. The related percentages, frequencies of each cognitive level, and samples of reading comprehension questions are displayed below. The reading course book analyzed in the study is *Cover to Cover 3 for Reading Comprehension and Fluency* which was

authored by Richard R. Day and Leslie Ono and published by Oxford University Press. Initially, with the aim of responding to the research question “To what extent do the reading comprehension questions in the EFL Reading course book *Cover to Cover 3 for Reading Comprehension and Fluency* include the lower and higher order cognitive levels suggested by the revised Bloom’s taxonomy?”, question stems related to cognitive levels and key words indicating the cognitive domains of the revised Bloom’s taxonomy were administered to explore which cognitive levels were covered in the examined reading comprehension questions. Based on a qualitative research design, the frequencies, percentages, and samples of reading comprehension questions were provided in the study. Since the revised Bloom’s taxonomy is an effective model for inquiring teaching materials (Zareian, Davoudi, Heshmatifar & Rahimi, 2015), to assess the reading comprehension questions in detail with regard to the cognitive levels, a descriptive analysis technique by gathering, listing, and examining the reading comprehension questions based on both low order and high order thinking skills as classified in the revised Bloom’s taxonomy was employed. In sum, the revised Bloom’s taxonomy was used as the theoretical framework of this research paper and the findings were accordingly tabulated.

2.1. Research Ethics

This study was conducted based on ethical considerations. The required ethical rules were taken into consideration in the overall study. Further, the citations in the study were displayed properly and completely. The paper has not been submitted for evaluation to any other journal. Moreover, the author confirms that the study does not require ethics committee approval.

3. Data Analysis and Results

The descriptive content analysis included grouping every question based on the six cognitive levels specified in the revised Bloom’s taxonomy. Frequencies, reporting percentages, and sample questions representing the taxonomy are illustrated below. Data results were also illustrated in the form of lower and higher order cognitive domains. The pursuing tables and their reports clarify the stated dimensions.

Table 1. The Extent of the Six Levels of the Cognitive Domain of the Revised Bloom’s Taxonomy in the Reading Questions

Level of question	F	%
Remember	274	78.74
Understand	74	21.26
Apply	-	-
Analyze	-	-
Evaluate	-	-
Create	-	-
Total	348	100.00

As it is clearly understood from Table 1, remembering level (78.74%) is the highest occurring cognitive skill among others. Further, understanding level is the second highest percentage (21.26%) just after the remembering level. On the other hand, no emergence was observed in the applying, analyzing, evaluating, and creating levels respectively. The following samples represent the reading comprehension questions emerged in the analysis:

- What is one reason that the male beauty trend is popular? (remembering level, unit 1, p.4)
 - a. Men are more comfortable caring about their looks.
 - b. Consumerism is decreasing.
- Discuss. How would your life change if you lost an arm? (understanding level, unit 5, p.73)

Table 2. The Extent of the Higher and Lower Order Cognitive Domains of the Revised Bloom's Taxonomy in the Reading Questions

Level of question	f	%
Lower Level	348	100.00
Higher Level	-	-
Total	348	100.00

It is simply comprehended from Table 2 that the lower level cognitive domain appeared with a percentage of 100.00. However, the higher level cognitive domain was observed to have no occurrence.

Table 3. The Extent of the Remembering and Understanding Levels of Each Unit

Unit	Remembering		Understanding	
	f	%	f	%
1	26	74.29	9	25.71
2	34	85.00	6	15.00
3	24	88.89	3	11.11
4	28	87.50	4	12.50
5	21	72.41	8	27.59
6	16	59.26	11	40.74
7	24	92.31	2	7.69
8	19	79.17	5	20.83
9	24	85.71	4	14.29
10	23	92.00	2	8.00
11	18	69.23	8	30.77
12	20	68.97	9	31.03

It is crystal clear from Table 3 that the extent of remembering level is extremely higher than the extent of understanding level. Thus, it is simply understood from the table that, let alone higher order cognitive thinking skills, there is a huge gap between remembering and understanding levels within the lower cognitive domain.

4. Discussion and Conclusion

Lastly, although we see a number of course book evaluation studies in the related literature (Ulum, 2014; Ulum, 2015c; Ulum & Köksal, 2019; Ulum & Köksal, 2020; Köksal & Ulum, 2021), there seems to be not enough course book evaluation studies on the revised Bloom's taxonomy. Thus, this study is structured on a course book evaluation with respect to the revised Bloom's taxonomy. This study intends to concentrate on the analysis of the reading questions of the course book *Cover to Cover 3* in line with the framework of Bloom's revised taxonomy. The course book excluded higher cognitive skills and domains but addressed lower cognitive skills (Palmer & Devitt, 2007; Lemons & Lemons, 2013). Therefore, it is possible that foreign language learners cannot develop higher cognitive skills because generally their lower cognitive skills are reinforced and broadened (Chipman, Segal & Glaser, 2013). However, ELT departments and Ministry of National Education should revise the reading questions of course books so that higher cognitive skills of learners can be improved (VanSickle & Hoge, 1991). In addition, they should be able to approach a reading question critically (Tierney, Soter, O'Flahavan & McGinley, 1989), since critical thinking is a vital issue in EFL/ESL settings (Ördem & Ulum, 2019; Ulum & Uzun, 2020). Not only ELT departments and Ministry of National Education but also English teachers ought to revise these questions and adapt them to higher cognitive skills (Adams, 2015). If these skills cannot be developed, learners cannot improve their skills at higher level (Valcke, De Wever, Zhu, & Deed, 2009; Ulum, 2016b; Köksal & Ulum, 2018). Higher order skills are related to differentiating, discriminating, focusing and selecting in the dimension of analyzing (Bloom, 1956). In addition, the dimension of evaluating entails checking, coordinating, detecting, monitoring, testing and critiquing. Another dimension and category of higher order skills are creating that includes generating, hypothesizing, planning, designing and producing (Gonzalez-Cabezas, 2015; Ulum & Taşkaya, 2019). It was found that the course book *Cover to Cover 3* did not address these skills. Therefore, it is probable that foreign language learners cannot develop these skills.

Future research can concentrate on the inclusion of higher cognitive skills into their curriculum, program, and syllabus regarding reading questions. Although there are general program evaluation studies in the literature (Ulum, 2015b; Ulum, 2016c), there should be other program evaluation studies regarding Bloom's revised taxonomy as well. Unless these skills are supported, they can remain limited to only lower cognitive skills and domains. Instead of limiting learners only to remembering, understanding and applying, additional dimensions and categories of revised taxonomy developed by Bloom can be addressed. Some important points can be suggested:

- ELT departments and Ministry of National Education should include activities that address higher order cognitive domains into reading questions.
- Curricula and syllabi should be revised in order that learners can develop their higher cognitive skills.
- Critical thinking skills should be improved in order to help them negotiate meaning.
- Three memory types composed of working memory, short-term memory and long-term memory should be endorsed with the help of Bloom's revised taxonomy.
- Reading tasks and activities should be supported with additional questions.
- Foreign and second language learners had better participate in collaborative activities in classroom settings.
- Course books should adapt and adopt Bloom's revised taxonomy.
- In accordance with higher order cognitive skills, second and foreign language learners should be able to be given the opportunity to develop their language skills.

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