

An Analysis of Cognitive Level in Reading Questions of English Textbook for Vocational High School

Andi Mega Januarti Putri¹, Rafiqa^{1*}, Ainun Apriawan¹

¹Universitas Sulawesi Barat, Indonesia

Correspondence: rafika@unsulbar.ac.id

ABSTRACT

The paper intends to analyze the cognitive level of questions from the text in the English Textbook. The researchers examined the cognitive level of the reading questions and the most dominant level in this book based on the levels of the revised edition of Bloom's Taxonomy. Because the information gathered was verbal, this study can be classified as a qualitative descriptive. The researchers used the textbook "Look Ahead Book 1 An English Course" as a data source and uses a checklist table in collecting and analyzing data to find research results. The researcher analyzes the questions in an English textbook, but only focuses on questions from the text in the chapter with narrative text. After doing the research, there are 2 chapters containing narrative text questions and there are 61 questions that are studied. The results showed that the level of questions in the book "Look Ahead Book 1 An English Course" only contains 5 levels, namely Remembering, Understanding, Applying, Analyzing, and Evaluating, which from the research results found the percentage of each level is 11, 48% for the Remembering level, 16.39% for the Understanding level, 1.64% for the Applying level, 47.54% for the Analyzing level and 22.95% for the Evaluating level. Hence, In terms of Bloom's taxonomy, the Analyzing level is the most prevalent here, making up 47.54 percent of the text.

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1. Introduction

Reading comprehension can be defined as the process through which a reader is able to construct meaning by engaging with the text they are reading. The following message, or it's possible that the meaning communicated is information or knowledge. Reading comprehension requires a reader to have an understanding of both the meaning and the information presented in the text. The primary topics covered by frequently asked questions pertaining to specific sections of the text are the principal ideas, the specific information, and the conclusions that can be drawn from studying that section of the text. Furthermore, learning activities both inside and outside of the classroom rely heavily on textbooks as their primary support. The purpose of a textbook is to engage students with learning materials (Hardi & Rizal, 2020). Additional, students' cognitive functions are susceptible to being influenced by the availability of textbooks. Students are able to increase their knowledge and improve their skills by reading textbooks, translating text, and evolving vocabulary (Rafiqa et al., 2019; Rafiqa, 2017).

One way to measure the students' understanding of the reading text is by providing the questions. The questions become one of the most effective techniques for determining whether or not students understand the material. The previous study stated that reading questions are the most effective method for determining whether or not a student is proficient in reading skills, hence it is essential to select and assess the reading texts that contain the finest questions. Reading comprehension questions are typically included in the reading resources that students use to test their reading ability (Gultom & Gultom, 2021). According to the revised version of Bloom's Taxonomy, the questions may range from lower-order thinking (to higher-order thinking (Febrina et al., 2019; Gultom & Gultom, 2021; Theresia et al., 2021).

Based on the aforementioned explanation, one of the phenomena uncovered by the researcher is the requirement to measure the cognitive level of reading questions in English textbooks. It is important to measure that this textbook had aided students in teaching their ability to succeed in their English studies and also to identify the level of cognitive-based Revised Bloom's Taxonomy. Consequently, the researchers chose the following as this study's title: "An Analysis of Cognitive Level in Reading Questions of English Textbook for Vocational High School"

2. Method

This research, essentially, examined the content of the English Textbook specifically, the cognitive levels of Revised Bloom's taxonomy in the reading questions for the narrative text in two chapters with nine texts of 'Look Ahead Book 1 An English Course' Textbook published by Erlangga, written by Th. M. Sudarwati and Eudia Grace, which was used by tenth-grade students in SMK 1 Labuang, Polewali Mandar regency. The research was conducted from October to November 2022. As for the research main data source was taken from the content of the textbook, thus, this research took a content analysis method design with descriptive qualitative description. As it was explained that the qualitative content method is one of many methods used to analyze text data which could be articles, questions, narratives, and many more (Hsieh & Shannon, 2005). Moreover, they stated that this method used for subjective data text interpretation by systematic process of identifying and classifying codes and patterns. Qualitative content analysis is said involving three main steps, which are preparation, organization and reporting of results that basically used by the researchers in conducting this research (Elo et al., 2014). The instrument used in this research was a checklist to ensure data identification for further analysis. The checklist itself used indicators of cognitive level in Reading Questions which consist of Remembering (4 indicators), Understanding (6 indicators), Applying (4 indicators), Analyzing (4 indicators), Evaluating (3 indicators) and Creating (1 indicator) (Anderson et al., 2001; Patricia Armstrong, 2017). Member checking also used in this research as the data validity test technique.

3. Result

In this section the results and discussion showed and described based on the research objectives mentioned on some previous sections before. They are the levels of cognitive found in the reading questions for the narrative texts and the most dominant cognitive level used in reading questions in the English Textbook for tenth grade students in SMKN 1 Labuang, Polewali Mandar regency.

During the process of the research, the researchers analyzed 61 reading questions for nine narrative texts in two chapters of the English Textbook as it was the focus of this research to identify and classify into categories of cognitive level of Revised Bloom's Taxonomy. The texts questions analyzed were from six narrative texts such as 'The Legend of Minos, King of Crete', 'Tall Tale', 'Myth Batara Kala', 'Thumbelina', 'The Fly and The Bull' and 'Bandung Bandowoso and Roro Jonggrang', also two narrative texts from Chapter 4 such as 'Did Not Mean to Hurt You', 'The Gift' and 'The Necklace'.

As it was explained before, the Revised Bloom's Taxonomy related to cognitive level consists of six levels which are Remembering, Understanding, Applying, Analyzing, Evaluating and Creating and employing this taxonomy has many advantages either for the teacher or students during learning process such as improving pedagogical interactions, organizing and clarifying learning objective for both teacher and student like providing planned and proper instruction, designing valid assessment task with strategies and ensuring those mentioned aligned with objectives (P. Armstrong, 2009). The researchers tried to present the data findings accordingly to this levels in the following sections.

3.1. Remebering

The cognitive level of remembering, as it was defined in Anderson & Krathwohl in Forehand (2001) with some specific keywords some of them are recognizing and recalling knowledge from memory. It was supported this by emphasizing that remembering is the ability in retrieving relevant information from memory (Raqqad & Ismai, 2018). It is in line with indicators used in checklist instrument as guidance in carrying out this research, where memorizing is the main indicators for recalling facts, terms, answers or basic concepts from the information learned through reading material. The result of analysis, after checking, identifying and classifying process, based on the cognitive level, specifically, remembering concepts of Revised Bloom's Taxonomy, is presented in table below:

Table 1. Results of Remembering Cognitive Level

Cognitive Level	Text/Chapter	Question Number	Total
Remembering	The Legend of Minos, King of Crete/Text 1-Chapter 2	1 & 4	2
	Myth Batara Kala/Text 3-Chapter 2	4	1
	Thumbelina/Text 4-Chapter 2	5 & 6	2
	The Fly and The Bull/Text 5-Chapter 2	2	1

Bandung Bandowoso and Roro Jonggrang/Text 6-Chapter 2	1	1
Did Not Mean to Hurt You/Text 1-Chapter 4	4 & 5	2
The Necklace/Text 3-Chapter 4	1	1
Total		10

It can be seen from the table above, there are 10 reading questions of 61 total questions to be analysed in this research that employed Remembering cognitive level of Revised Bloom's Taxonomy. The typical and majority questions that researchers considered included in Remembering cognitive level category are questions that stimulate students to remember or recalling explicit information within the text such as "Who kidnapped Thumbelina?" or "Where does the story take place?", these types of questions usually already provide their answers explicitly in the texts paragraph, students only need to remember or retrieve some obvious information from their memory, in this case, memory of the text information. From the table, it is apparent that only 7 of 9 of the texts that employed Remembering cognitive level through its questions. By looking at the table, it also can be said that 16,3% of the questions analysed in this research is classified into Remembering Cognitive level category.

3.2. Understanding

This cognitive level of Understanding of Revised Bloom's Taxonomy is referred as interpreting, classifying, exemplifying or explaining in order to developing particular meaning (Abdelrahman, 2014). Furthermore, understanding is ability to demonstrate comprehension previously obtained knowledge (Tayyeh, 2021). In addition, the checklist indicators related to this level of cognitive also employ the term demonstrating understanding by organizing, comparing, translating, interpreting, providing description or stating main idea as the main indicators. The findings of Understanding Cognitive level are shown in following table:

Table 2. Results of Understanding Cognitive Level

Cognitive Level	Text/Chapter	Question Number	Total
Understanding	Tall Tale/Text 2-Chapter 2	1, 2 & 3	3
	Myth Batara Kala/Text 3-Chapter 2	1	1
	Thumbelina/Text 4-Chapter 2	1 & 3	2
	The Fly and The Bull/Text 5-Chapter 2	3 & 6	2
	Bandung Bandowoso and Roro Jonggrang/Text 6-Chapter 2	2 & 3	2
	Did Not Mean to Hurt You/Text 1-Chapter 4	6 & 8	2
	The Gift/Text 2-Chapter 4	1 & 4	2
	The necklace/Text 3-Chapter 4	4 & 5	2
	Total		16

In the previous table, it is obvious that reading questions that apply Understanding cognitive level of Revised Bloom's Taxonomy are 16 of 61 total questions analysed in this research. As for the questions form that categorized in Understanding cognitive level category are mostly questions that require students to arrange and remake information from any information learnt before. Some of the questions from the textbook that come under the Understanding cognitive level category are such as "How did the Indian overcome his problem? Or "Describe Mathilda and Frau characters!", these are the types of questions that sort of insist students to rethink about and recollect the information they got before from the texts and rearrange them in their own way to form particular meaning to demonstrate the idea and facts based on their understanding that compatible to the supposed answer. From the table above, it can be known that all the nine texts analyzed from the textbook in this research applied Understanding Cognitive level through their reading questions. As for the percentage of reading questions throughout the questions analysed that are categorized in Understanding Cognitive Level of Revised Bloom's Taxonomy in this research is 26,4% of 61 total questions.

3.3. Applying

Applying, in terms of Cognitive levels of Revised Bloom’s Taxonomy, is an ability to apply procedure information to perform assignment or to take care an issue (Tayyeh, 2021). As Abdelrahman (2014) stated the keywords that was often associated with Applying of Cognitive Level based on Revised Bloom’s Taxonomy are executing and implementing. Moreover, the main indicators in determining the classification of questions belong to Applying level of Cognitive are mostly focusing on solving problems by employing information which could be knowledge, facts technique or rules. Here, in this following table, the researchers showed the findings on reading questions as part of Applying Cognitive level category:

Table 3. Results of Applying Cognitive Level

Cognitive Level	Text/Chapter	Question Number	Total
Applying	Myth Batara Kala/Text 3-Chapter 2	3	1
	Bandung Bandowoso and Roro Jonggrang/Text 6-Chapter 2	7 & 8	2
	Total		3

From the table shown before, it is noticeable that this level of cognitive is only employed by two out of nine narrative texts with three of 61 total questions analyzed in this research or in other words, 4,9% of the questions that was analyzed for this research. The main point considered by the researchers to identify Applying cognitive level in reading questions is by looking at the requests of the questions whether or not the students need to use their strategic knowledge or knowledge about cognitive tasks involving appropriate contextual and conditional knowledge (Sanli, 2019) like one of the questions for Applying as Cognitive level where the students required to find the solution for the problem listed within the questions related to the text material learnt before. This said question is shown below:

Table 4. Applying Reading Question in Textbook

Problem	Solution to the problems
a. Batara Kala was not invited to drink Tirta Amertasari
b. Batara Surya and Batari Chandra knew what Batara Kala did
c. Batara Kala swallowed Batara Surya and Batari Chandra

In this type of questions above, the students are required to offer a proper and contextual knowledge in order to provide a proper solutions for the problem mentioned on the left side of the table, with that saying, it is clear to identify this as Applying Cognitive level.

3.4. Analyzing

This cognitive level of Analyzing according to Anderson & Krathwol in Forehand (2005) referred to deconstructing parts of material, knowing how that particular parts relate to other parts and to the whole structure or intention by distinguishing, arranging and associating. This cognitive level, from the researchers perspective is almost quite similar to Understanding Cognitive Level, it can be seen from the similar keywords relating the two levels. Perhaps, the determining factor in classifying it relies on how in Analyzing Cognitive Level knowledge is preferably to be taken apart or broken into parts to be pinpointed while Understanding Cognitive level, the ideas or information could be directly taken and arranged only in slightly different or particular form of meaning. It is quite in line with the indicators used in identifying the questions where examining and breaking information into parts are half of it, while, the others are making inferences and finding evidence to support generalizations (P. Armstrong, 2009). The result of Analysing cognitive level can be seen on the table below:

Table 5. Results of Analysing Cognitive Level

Cognitive Level	Text/Chapter	Question Number	Total
Analyzing	The legend of Minos, King of Crete/Chapter 2	2 & 3	2
	Tall Tale/Text 2-Chapter 2	4 & 5	2
	Myth Batara Kala/Text 3-Chapter 2	2	1
	Thumbelina/Text 4-Chapter 2	2 & 4	2
	The Fly and The Bull/Text 5-Chapter 2	1, 4 & 5	3
	Bandung Bandowoso and Roro Jonggrang/Text 6-Chapter 2	4, 5 & 6	3
	Did Not Mean to Hurt You/Text 1-Chapter 4	9	1
	The Gift/Text 2-Chapter 4	2, 3 & 5	3
	The Necklace/Text 3-Chapter 4	2	1
	Total		18

Based on the table presented above, it is visible that out of 61 total questions analyzed in this research, there are 18 questions that have Analyzing Cognitive Level which means 29,5% of the total questions, and evidently, all of the texts analyzed employed Analyzing Cognitive Level in their reading questions. Some of distinctive type of questions that have this cognitive level are frequently require deep analysis due to implied information in the text that the readers need to separate or break the information in their mind to be able connect that part of information with other information or specific purpose. Some of the questions found that meet the category of Analyzing Cognitive level are such as “Why do you think the writer wrote ‘You’d see him coming..., and almost as fast?’ or “Who is telling the story? Is it a character in the story or an observer?”. These forms of question require students to not only understand the text as a whole but also need to do a deep thinking by breaking the already retrieved information into pieces to relate them to other information or particular purpose or in this case to see and understand the text from writer’s perspective.

3.5. Evaluating

The Evaluating Cognitive Level deals with making consideration or reasoning according to standards and criteria by checking and critiquing (Abdelrahman, 2014). It is also said that it is the ability to judge the value of material or information (Tayyeh, 2021), perhaps, including the quality of a work. In addition, the indicators used in determining the cognitive level of the question in Evaluating showed that making judgment is the main point whether about information, validity of idea or work quality. The findings about the Evaluating Cognitive Level in Reading questions are shown in the following table:

Table 6. Results of Evaluating Cognitive Level

Cognitive Level	Text/Chapter	Question Number	Total
Analyzing	The legend of Minos, King of Crete/Text 1-Chapter 2	2 & 3	2
	Tall Tale/Text 2-Chapter 2	4 & 5	2
	Myth Batara Kala/Text 3-Chapter 2	2	1
	Thumbelina/Text 4-Chapter 2	2 & 4	2
	The Fly and The Bull/Text 5-Chapter 2	1, 4 & 5	3
	Did Not Mean to Hurt You/Text 1-Chapter 4	9	1
	The Gift/Text 2-Chapter 4	2, 3 & 5	3
	The Necklace/Text 3-Chapter 4	2	1
	Total		18

According to the table above, there are 14 reading questions of Evaluating Cognitive Level out of 61 total questions analyze, it means 22,9% of the questions analyzed in this research already applied Evaluating Cognitive Level. As for the texts, 8 of 9 texts also employed Evaluating Cognitive Level in their reading questions. Most of the questions for Evaluating Cognitive Level is basically asking about opinion of the students about information in the text materials, the typical

questions are like “Do you like the story?” or “Is the story interesting or exciting?” which require students to give judgment about the story, hence, naturally, classified in Evaluating Cognitive Level.

Other than Remembering, Understanding, Applying, Analyzing and Evaluating, The Cognitive Level has one other level which is Creating, as it was already mentioned before. However, throughout the research conduction, the researchers did not find any question that can be included into this Cognitive Level category. It is worth knowing, Creating Cognitive Level is defined as gathering elements to create functional whole (Abdelrahman, 2014). It is said that creating is the most challenging mind function in the Revised Bloom’s Taxonomy due to its requirements to the users, or in this case, the readers to gather parts or pieces of knowledge into new form or new product (Wilson, 2016) or in other words to produce new work. In the 61 questions analyzed in this research, none of the questions is categorized in Creating Cognitive level of Revised Bloom’s Taxonomy as none of the questions ask or require the student to make or create something new from the information or knowledge they got through texts learnt before.

Based on the research findings discussed before, the researchers can get the idea about cognitive levels applied through reading questions in the two chapters of Textbook analyzed in this research, it is presented in this table below:

Table 7. Results of Cognitive Level in Reading Questions

No.	Cognitive Level	Total of Reading Questions	Percentages
1	Remembering	10	16,3%
2	Understanding	16	26,4%
3	Applying	3	4,9%
4	Analysing	18	29,5%
5	Evaluating	14	22,9%
6.	Creating	0	0,00%
Total		61	100%

The findings shown in the table above indicated that the cognitive Level of Revised Bloom’s Taxonomy applied through reading questions in English Textbook for tenth graders in SMK 1 Labuang, Polewali Mandar are 18 or 29,5% of the questions applied Analyzing Cognitive Level, 16 or 26,4% questions applied Understanding Cognitive Level, 14 or 22,9% of the questions applied Evaluating Cognitive Level, 10 or 16,3% of the questions applied Remembering Cognitive Level, 3 or 4,9% of the questions applied Applying Cognitive Level and 0 question for Creating Cognitive Level. Therefore, it can be concluded also that the dominant Cognitive level used in reading questions for English textbook for tenth graders in SMK 1 Labuang, Polewali Mandar is Analyzing Cognitive Level with 18 of 61 questions or 29,5% of the questions.

4. Conclusion

Based on the findings and results of this research, the researchers found that the cognitive levels of Revised Bloom’s Taxonomy are used in English Textbook for tenth grade students in SMK 1 Labuang, Polewali Mandar through its reading questions. Specifically, Remembering Cognitive Level was applied in 10 questions or 16,3% of the total questions, Understanding Cognitive level was used in 16 questions or 26,4% of the total questions, Applying Cognitive Level was used in 3 questions or 4,9% of total questions, Analysing Cognitive Level was employed in 18 questions or 29,5% of the total questions, Evaluating was employed in 14 questions or 22,9% of all the questions and Creating Cognitive level, apparently, was not employed in any of the question of the textbook. This is shown that the dominant Cognitive level applied in the textbook through reading questions is Analyzing Cognitive Level with 28,5% or 18 questions of 61 questions.

From the results of this research, it can be seen that not every Cognitive Level by Revised Bloom’s Taxonomy is applied in the reading questions in the textbook, and it is important to know that every level of Cognitive domain has its own stimulation function specifically for the students during learning process, and missing one of the levels might affecting the success of learning objective achievements. Thus, by acknowledging the result of this research, perhaps, can be one of many considerations to evaluate how the textbook writers, redactors or editors in designing questions for students, especially for narrative texts, to be more thought stimulating and proportional in its distribution in terms of Cognitive Level application.

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