

**CASE STUDY: ANALYSIS OF FOURTH GRADERS' THINKING
LEVELS ON ENGLISH VOCABULARY USING SMARTBOOK
BASED ON BLOOM'S TAXONOMY**

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Abstract

The use of technology can serve as an attractive tool for students to enhance their abilities, one of which is by utilizing a smartbook that contains materials and practice questions packaged in various digital platforms. This article aims to identify the challenges students face in understanding English vocabulary based on Bloom's Taxonomy. Bloom's Taxonomy has been widely used as a reference to measure students' abilities in the learning process, particularly in the cognitive aspect. The method used in this research is qualitative with a case study approach. The respondents of this study were 7 students, the homeroom teacher, and the fourth-grade English teacher at SDN Sawojajar 6, Malang City. Data were collected through interviews and documentation. The results of the study indicate that students face challenges in solving medium to HOTS (Higher-Order Thinking Skills) level questions due to their low interest in learning English, limited use of gadgets at school, and unfamiliarity with HOTS-type questions in English subjects.

Keywords: Smartbook, Bloom's Taxonomy, and English Vocabulary

1. INTRODUCTION

In this modern era, many elementary schools have made English a mandatory subject. As we all know, English is an international language that serves as an efficient communication tool (Abimanto, 2022). Additionally, the use of English aims to access various scientific and cultural information, making English proficiency essential for teachers and students in schools. In learning English, there are four main skills that must be mastered: speaking, writing, listening, and reading. Just as a building requires a foundation, so does learning English. There are four basic foundations in English learning: grammar, vocabulary, spelling, and pronunciation. Many people often overlook the importance of mastering vocabulary, which actually needs attention from an early age as a foundation for mastering English well. Students are not only expected to master correct spelling but also to pronounce vocabulary accurately and understand its meaning, so that communication in English, both spoken and written, can be easily understood (Waskita, 2017).

Many students at the elementary level consider English lessons to be intimidating. Therefore, effective strategies are needed to increase interest in learning English in elementary schools. One way to improve their English skills is by increasing vocabulary mastery, so they can understand meanings in the context of sentences or stories. However, in practice, teachers often lack focus on vocabulary development for students (Khasanah et al., 2014). Considering their age, most elementary school students prefer interactive

and enjoyable learning. One way to keep them from getting bored while learning is to incorporate games into the delivery of the material. The introduction briefly explains the research background, research gaps, and research objectives at the end of the introduction. The introduction should be written efficiently and supported by relevant references.

The state is defined as the highest organization among a group of people who have aspirations to live together in the region and have a sovereign government. The goals of the state, among others, are to expand power, maintain law and order and to achieve general welfare. A country certainly in it there are citizens who take shelter in it.

According to the 2006 UUKI, what is meant by a citizen is a country that is determined based on statutory regulations. The state is a place for the growth of religion. In the relationship between the state and citizens, it is very closely related (Abdillah, 2020; Sadzali & Fitrah, 2020). Citizens play an important role in maintaining the integrity of a country. Muslims in Indonesia must be smart to be a pillar of inter-religious harmony. The plurality of Indonesian citizens in terms of religion, ethnicity, race, and inter-group conflicts often occur which can have an impact on the integrity of the Republic of Indonesia, abbreviated as NKRI. However, the spirit of maintaining the integrity of people and tribes and maintaining the integrity of the Unitary Republic of Indonesia is starting to be forgotten by the successors of this nation (Shaleh & Wisnaeni, 2019).

2. LITERATURE REVIEW

2.1. Enriching the Students' Vocabulary Mastery

Vocabulary mastery can be effectively achieved by teachers if they can find the right learning strategies or approaches and use engaging and enjoyable learning media that are appropriate for the students' age and skill level. According to Komachali & Khodareza (2012), before implementing enjoyable learning approaches and media, teachers first need to understand the students' initial abilities and their level of English vocabulary mastery. This aims to enable teachers to meet the needs of the students according to their background. Learning strategies will significantly impact the learning atmosphere in the classroom. Teachers who can create a comfortable learning environment will make students feel at ease during the learning process in class.

One strategy that teachers can apply to increase students' interest in developing their vocabulary skills is by designing learning media that are attractive, creative, innovative, not boring, and not monotonous. Engaging learning media can stimulate students' thoughts, feelings, attention, and interest because they can convey the message from the sender to the receiver in the learning process (Sadiman, 2006). Additionally, media also have great benefits in motivating and boosting students' enthusiasm to improve their English vocabulary skills (Falahudin, 2014). Learning media are like scenery on a journey. If, during a journey, someone encounters dull, unattractive, and unappealing scenery, even the closest views will feel very boring and seem distant. To increase students' interest in the learning process, teachers must strive to provide interactive and varied learning that is student-centered.

The utilization of technology in education has become an essential part of responding to the progress of the times. In English language learning, technology and digital platforms are no longer seen merely as innovations but as necessities to broaden access and enhance the effectiveness of education. Additionally, by using technology-

based learning media, teachers can create more interactive, effective, and dynamic learning experiences, allowing students to reap the benefits in their daily lives and communication. One aspect of millennial generation competence is literacy in Information, Media, and Technology, which requires teachers to be literate in information, media, and ICT (Annisa, 2022). Therefore, teachers need to have better mastery of information technology compared to the millennial generation. This mastery of Information and Communication Technology (ICT) is one of the professional competencies that teachers must possess.

Education is the main foundation in building superior human resources. One of the primary goals of education is to help students achieve optimal cognitive development. This cognitive level is closely related to the ability to think, understand, analyze, and evaluate information. Therefore, measuring students' cognitive levels is crucial to ensure that the teaching and learning process is effective and achieves the desired educational goals. Bloom's Taxonomy, developed by Benjamin Bloom in 1956, is one of the most widely used frameworks in education to classify educational objectives into various cognitive levels.

2.2. The Importance of Bloom Taxonomy in Education

Bloom's Taxonomy is a guide for creating English lessons with clear objectives through specific questions to test students' understanding at each level of the thinking process in the language, from lower-order thinking skills to higher-order thinking skills. Additionally, this taxonomy allows teachers to see the integrative relationship between textbook knowledge and the cognitive processes of learning objectives (Boeren & Iniguez-Berrozpe, 2022). This taxonomy can also encourage critical reading processes by providing a framework for English teachers to plan various activities and learning strategies using textbooks (Djallel, 2022). Tarigan & Stevani (2022) argue that Bloom's Taxonomy can be used by teachers as a guide to developing evaluation questions. Understanding students' cognitive levels is a crucial step in creating an effective learning environment that supports both academic and personal development. Teachers with a deep understanding of these cognitive aspects will be better equipped to design meaningful learning experiences, encourage active participation, and prepare students for future success.

In the context of a rapidly evolving world and increasing complexity of issues, strong cognitive abilities are becoming increasingly important. Students are not only required to memorize information but also to apply, analyze, and evaluate it critically. Therefore, measuring cognitive levels based on Bloom's Taxonomy is an essential tool in creating an educational system that is adaptive and responsive to the changing times.

2.3. Previous Research

The research conducted by Hardiansyah et al. (2023) concluded that the use of smartbooks in teaching Science to fourth-grade students on the topic of the life cycle of animals is highly effective. Smartbooks have been proven to enhance students' understanding of the animal life cycle (metamorphosis). The advantages of smartbooks lie in their attractive cover design, the use of easily understandable language, clear illustrations for explaining the material, and the readable size and type of paper, all of

which draw students' attention and motivate them to be more enthusiastic about learning. The smartbook as a learning medium has a unique appeal to students because it presents visualizations with foldable, movable, and pop-up features, providing surprise and wonder as students turn each page. This makes it easier for the material to be retained in memory when using this medium (Rahmawati & Rukiyati, 2018).

Asyiah (2017) conducted a research entitled "The Vocabulary Teaching and Vocabulary Learning: Perception, Strategies, and Influences on Students' Vocabulary Mastery". It was found that teaching and learning vocabulary is necessary, as it is considered a powerful method for enhancing students' language skills, including cognitive, affective, and behavioral aspects. Additionally, vocabulary instruction and learning were viewed as particularly effective in strengthening students' cognitive abilities, such as how they recall, comprehend, and use vocabulary in daily communication. Moreover, these practices were also seen as influential in improving students' emotional development, which in turn positively affected their behavior.

Based on the research conducted by Anita & Astuti (2022), they found that in the aspect of digitalizing communication in education policy, teachers feel that they have experienced accelerated access to educational policies. They are better able to understand national education policies and can follow direct guidance from the central government through available information channels. However, in the aspect of digitalizing learning, teachers have not yet demonstrated sufficient digital readiness. They have not utilized the various software provided to maximize learning. That is why the researcher in this research has a willingness to improve the teachers' skill in utilizing technology in digitalization era.

3. RESEARCH METHODS

3.1. Data Collection Procedures

This study uses a qualitative method with a case study approach. The research was conducted at SDN Sawojajar 6 in Malang City, East Java, during the first semester of the 2024/2025 academic year. The population of this study consists of fourth-grade students at SDN Sawojajar 6, Malang City. To determine the sample, the researcher used purposive sampling. According to Sugiyono (2013), purposive sampling is the process of selecting data sources for specific reasons, so the sample in this study includes the fourth-grade teacher, the English teacher as the main subject, and 7 fourth-grade students.

Adopting the qualitative research steps proposed by Creswell and Poth, this study includes several main steps as follows:

First, selecting the research topic. The initial step in qualitative research is choosing a relevant topic based on the researcher's interests, academic needs, and practical challenges and issues in the field. The researcher chose the topic of using smartbook learning media to enhance students' English vocabulary, from the perspective of Bloom's Taxonomy.

Second, selecting the research method. After determining the topic, the researcher chose the most appropriate qualitative research method for the research questions and objectives. The qualitative approach involves direct interaction between the researcher and participants, with the researcher acting as the primary data collection instrument. During data collection, the researcher directly seeks facts and observes activities in detail,

including teaching in the classroom and monitoring student activities to identify the issues they face.

Third, designing the research. The researcher develops a plan that includes steps for data collection and analysis, such as creating interview guides, observing students' thinking levels based on Bloom's Taxonomy, and planning question analysis.

Fourth, data collection. This stage involves gathering field data according to the chosen methods, including interviews, participatory observations, direct observations, and document analysis.

Fifth is data analysis. After collecting the data, the researcher performs in-depth analysis to identify patterns, themes, and meanings from the data. This process involves coding data, searching for patterns, and interpreting meanings.

In this study, data collection techniques include semi-structured interviews and documentation. The researcher then analyzed the data through four stages: (1) collecting data through interviews with the fourth-grade teacher, the English teacher, and fourth-grade students, and documenting activities to support interview results; (2) data reduction by sorting and summarizing important data; (3) presenting data in narrative text form; and (4) drawing conclusions based on reliable data.

3.2. Data Analysis Procedures

The researcher validated the data's accuracy through source triangulation. This validation was carried out by comparing the obtained data sources against the correlation between initial and final assessments based on Bloom's Taxonomy and students' learning experiences using the smartbook.

The key informants for this study were seven fourth-grade students from Class IV A at SDN Sawojajar 6, Malang City. The supporting informants were the fourth-grade class teacher and the English teacher at the school. The interviews with these informants served as primary data sources for the research. In addition to collecting primary sources, secondary data for this study came from interviews, documentation, and other supporting data such as questionnaires distributed to the students.

To obtain more accurate results, the researcher developed evaluation questions for the informants consisting of six questions with varying cognitive levels, following the cognitive domain of Bloom's Taxonomy (C1-C6). Each question has different points depending on its cognitive level.

4. RESULTS AND DISCUSSION

The results of the research obtained from evaluating the fourth-grade students at SDN Sawojajar 6, Malang City, show a diversity in understanding and the ability to comprehend vocabulary based on Bloom's Taxonomy cognitive levels.

**Table 1. The Result of Students' Vocabulary Evaluation
According to Taxonomy Bloom**

Research Subject	Cognitive Level					
	C1	C2	C3	C4	C5	C6
Subject 1	√	√	X	X	X	√
Subject 2	√	√	√	X	X	X
Subject 3	√	√	√	√	X	X
Subject 4	√	√	X	X	X	√
Subject 5	√	√	X	X	X	X
Subject 6	√	√	√	√	X	X
Subject 7	√	√	√	X	X	√

4.1. Research Results

In this study, the author examines the implementation of Bloom's Taxonomy in the educational environment. Bloom's Taxonomy, introduced by Benjamin Bloom in 1956, is a framework used to categorize learning objectives in the field of education. This taxonomy consists of three main domains: cognitive, affective, and psychomotor. In this study, the author focuses on students' ability to master English vocabulary through the implementation of a smartbook.

Based on the results of the questionnaire completed by the students, 71% agreed that the content in the smartbook is quite engaging and easy to understand. This indicates that the majority of them are able to comprehend the content of the smartbook. The smartbook is equipped with various digital applications such as wordwall, quizizz, Kahoot, and YouTube to facilitate students' understanding of the material and serve as evaluation tools. Each digital platform contains a barcode that allows students to scan and access the content anytime and anywhere, without being constrained by space and time. However, in reality, many subjects in this study still faced challenges when answering evaluation questions.

However, there still a lot of students who have difficulties in doing the exercises after the implementation of the smartbook. The exercises was designed based on Bloom's Taxonomy. Some of them are getting less interest in learning English and think that English is not an easy subject. They also have some difficulties in implementing the barcodes which are provided in the smartbook.

4.2. Discussion

The material presented in this smartbook covers vocabulary related to food and beverages, flavors of food or drinks, and the present continuous tense. The main focus is on the cognitive domain, which includes six levels: knowledge: remembering facts and basic concepts, comprehension: explaining ideas or concept, application: using information in new situations, analysis: breaking down information into parts and understanding its structure, synthesis: combining parts to form a new whole, and evaluation: judging or making decisions based on criteria and standards.

Application of Bloom's Taxonomy in English Learning for Understanding Food and Beverage Vocabulary and Present Continuous Tense: knowledge: at this level, students are expected to recall information learned through the provided images and are asked to name the corresponding English vocabulary; comprehension : students should be able to

explain the concepts they have learned. The application in the questions prepared by the author requires students to classify certain food flavors and then name foods according to the specified flavors; application: students apply their knowledge by matching and classifying several foods according to their flavors; analysis: students break down information into parts and understand the relationships between these parts. Learning activities might involve analyzing texts, diagrams, or charts. Given images of food and drinks, students are expected to analyze the flavors and find the corresponding English vocabulary based on these categories; synthesis: students combine elements to create something new. For example, combining several random words into a coherent and grammatically correct sentence in English; evaluation: students make judgments about the value or validity of information. In the evaluations prepared by the researcher, students are presented with an image and are required to create a sentence in English based on the image.

There are several factors that contribute to the varying levels of cognitive understanding among students:

4.2.1. Students' Interest in the Subject

Based on interview results, 43% of the subjects studied reported a dislike for English and found it confusing. Interest affects students' curiosity about a subject. If someone is less interested in something, they tend to be less motivated to learn about it. Three out of seven students expressed a lack of interest in English. This explains why the first and fifth students (S1 and S5), as shown in the table, have low cognitive levels despite being provided with engaging and interactive learning media by the teacher.

Handayani (2018) state that students' learning interest serves as a motivation for them to study. When students are interested in learning English, it becomes a driving force for them to improve their skills in the subject. If students are interested or enjoy a subject, they will study with enthusiasm and excitement, without fear. Learning interest significantly influences one's learning process (Mawarni et al., 2020).

4.2.2. Limitations on Mobile Phone Use in Schools

Fourth-grade students at SDN Sawojajar 6 in Malang are still restricted from using mobile phones during the learning process. According to the class teacher, this rule is in place to help students focus in class. Consequently, there are some challenges when teachers want to implement interactive learning media that require mobile phones. To address this, the researcher provides services and facilities to students through an LCD so that the smartbook can still be implemented.

Mobile phones are electronic devices useful for students when used for educational purposes (Alifzal, 2020). These devices can serve as simple learning media. Their practicality yet effectiveness makes mobile phones often considered as simple learning tools. Today, mobile technology has advanced significantly. Almost all types of mobile phones are equipped with features and services to support the learning process, including internet connectivity. Furthermore, students tend to prefer practical tools. Mobile phones can be used to access educational information, interact with multimedia content, or even participate in interactive learning activities designed by teachers. Mobile phones also support personalized learning, allowing each student to learn at their own pace and style. Through educational apps available on mobile phones, students can review material they

haven't understood, complete exercises, or even learn through educational games. This provides students with opportunities to be more independent in their learning and increase their motivation. Learning activities involve a series of student actions to gain learning experiences such as reading, writing, listening, thinking, obtaining information, and asking questions, which can change students' behavior cognitively, psychomotorically, and affectively to enhance learning achievements (Rahman & Chotimah, 2020).

4.2.3. Complexity of Evaluation Questions

Out of the seven students who were subjects of the study, question number 5 on the evaluation was not answered correctly by the students. Many of them said that question number 5 could be categorized as a complicated question. According to Bloom's cognitive domain, question number 5 is a synthesis, and students are expected to synthesize and combine elements to create something new. The researcher hoped that students could arrange several random words into a meaningful and grammatically correct English sentence. The vocabulary learned by the students is quite good, and they understand the meaning of each word. Unfortunately, they are not yet able to construct sentences according to grammar rules.

According to an interview with the English teacher, students are not well-trained in handling HOTS (Higher Order Thinking Skills) type questions. This means they are not yet accustomed to answering questions at C4-C6 levels. Consequently, many of them find English to be a difficult and confusing subject.

Guidelines for formulating evaluation questions and assessments based on Bloom's cognitive domain help teachers be more directed in designing assessments and understanding students' abilities. Bloom's Taxonomy serves as a guide for creating English lessons with clear objectives by asking specific questions to test students' understanding at each level of the cognitive process in language, from lower-order thinking skills to higher-order thinking skills. Additionally, this taxonomy allows teachers to see the integrative relationship between textbook knowledge and cognitive processes of learning objectives (Boeren & Iniguez-Berrozpe, 2022). This taxonomy can also encourage critical reading by providing a framework for English teachers to plan various learning activities and strategies using textbooks (Djallel, 2022).

5. CONCLUSION

Several factors contribute to the smartbook's limited effectiveness in enhancing English vocabulary. First, the low interest of students in English results in a lack of enthusiasm to engage with and start using the smartbook. Second, students are only able to use their devices at home due to restrictions on device use at school. Additionally, students are not yet accustomed to working on HOTS (Higher Order Thinking Skills) questions at cognitive levels V and VI. The success of implementing Bloom's Taxonomy heavily depends on the teacher's ability to design and implement appropriate teaching strategies.

The efforts to improve students' cognitive abilities should be continuously enhanced. This can be achieved by finding interactive and engaging teaching strategies and media. The case study indicates that students need ongoing training and should make

use of available technology. We must support students in leveraging technology's role in education.

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