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Research Article

The Implementation of Cognitive Domain Levels in Online EFL Classrooms

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ABSTRACT

The transition to online learning, accelerated during the Covid-19 pandemic and sustained in post-pandemic educational context, brought new issues to the way cognitive demands were realized in EFL classrooms. This paper draws on evidence from six secondary school English teachers in a regionally situated higher education context, to examine how cognitive domain levels were planned and enacted in online instruction. Lesson plans, recorded teaching sessions, and semi-structured interviews were analyzed to find out the relationship between intended cognitive objectives and classroom practice, using Bloom's Revised Taxonomy as an analytic reference. Across the cases, lesson plans reflected careful attention to the full range of cognitive levels. However, classroom activities tended to concentrate on remembering and understanding. Tasks that required students to apply knowledge, analyze ideas, or evaluate information appeared far less often. Although creative tasks, mainly individual writing assignments, were commonly assigned, these were rarely embedded within a sustained sequence of cognitive development. What teachers eventually did in class was strongly influenced by how comfortable they felt with digital tools, how reliable students' internet access was, and how little interaction online sessions sometimes allowed. The findings suggest that online EFL tasks need to be workable in context while still supporting broader cognitive engagement. From an applied linguistics perspective, these findings contribute to understanding how cognitive objectives in EFL pedagogy are negotiated in online learning environments, with implications for task design and cognitive engagement in language instruction.

Keywords: *Bloom's taxonomy, Cognitive domain, Higher-order thinking skills, Lesson planning, Online EFL classroom*

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INTRODUCTION

The typical teaching and learning process is gradually shifting from traditional to digital era since information and communication technology, with its rapid growth, influences many aspects of education. The integration of technology in teaching demands teacher to develop new approaches to education and adjust their instruction to their current classroom practice through virtual system (Haling et al., 2024; Lim & Wardrip, 2026). It suggests that teachers are expected to design and deliver complete courses, including learning materials and instructional activities, through online platforms as schools increasingly adopt online or blended curricula.

The materials and the process of instruction should reflect the learning objectives. Learning objectives as the heart of a course design need to be made clear at the planning stage (Chizhik & Chizhik, 2016). When developing learning objectives in a lesson plan, cognitive domain as the core of learning domain should be carefully planned to reach learning objectives optimally. Teachers should be able to elaborate levels of cognitive domain in lesson plan as the benchmark for developing learning strategies and activities in online classroom.

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In this context, Bloom's taxonomy has long been a means applied by educators, instructional designers, and those developing innovative courses to create and align objectives, lessons, and assessments to achieve all cognitive levels of the traditional classroom (Anderson & Krathwohl, 2001; Joyce & Calhoun, 2024). Some studies have explored cognitive domain levels in different aspects of teaching including the process of teaching and learning whether in traditional (Chuwa & Maro, 2025; Misrom et al., 2020) or virtual environment (Alsowat, 2016; Hoque et al., 2021; Rante et al., 2024), in the assessment of English teaching (Akib & Muhsin, 2020; Ramly & Abduh, 2018) and in analyzing cognitive domain demands within learning activities and classroom interaction (Sun et al., 2022). However, limited attention has been paid to how cognitive domain levels are planned in teachers' lesson plans and how they are actually enacted in online EFL classroom practices, particularly at the secondary school level.

Cognitive domain levels are important to facilitate learning achievement from lower levels of knowledge to higher-order thinking. Bloom (1956) and Krathwohl (2002) mentioned that these domains aim to help students apply and carry out their prior knowledge to the given situations in their learning process. They are key elements of human capital because they illustrate the productive abilities of individuals (Ramly & Abduh, 2018). The application of cognitive concepts is an indication of individual creativity and critical thinking. By giving appropriate and effective concept which implemented in learning activities, teacher can stimulate their students to think in a higher cognitive domain. As a result, students do not only recall their knowledge but also critically think for the answer. This process indirectly encourages students to solve their problems.

The need to take account of cognitive domains level in constructing learning objectives is necessary, particularly in designing online learning activities that not only promote student participation but also stimulate higher-order thinking skills. In Indonesian schools, however, the implementation of cognitive domains level is far from the expected situation. Seman et al. (2017) reveals that teacher is one of the main factors that influenced success or failure in teaching for higher order thinking skills. The questions usually asked by teachers are the ones that belong to the low level of the order of thinking and only cover some purposes (Wahyuni et al., 2020). Hence, the questions do not stimulate students to think critically. It is also due to the lack of teacher's knowledge about high order thinking skills (HOTS) as the teacher cannot distinguish HOTS as an ability, skill, learning strategy, learning method, or learning process (Afifah & Retnawati, 2019; Ganapathy et al., 2017). However, limited implementation of higher-order cognitive activities is not merely a matter of teachers' knowledge. Although the Revised Bloom's Taxonomy is widely acknowledged as an effective framework for organizing learning objectives, teachers tend to apply it more consistently at the planning stage than during classroom instruction, as higher-order cognitive activities are often more difficult to realize in practice (Chuwa & Maro, 2025). The low level of teachers' knowledge on HOTS is also caused by their low ability in solving HOTS problems (Retnawati et al., 2018). The lack of promoting higher order of thinking skills has been proven as one of the factors causing students' achievement problems (Nold, 2017).

This paper deals essentially with the way teachers implement cognitive domain levels, which reflected on their lesson plan. The implementation of cognitive domain levels in an online EFL classroom lies on some factors. Each aspect in lesson plan was measured on the basis of its relationship to Bloom's revised domain taxonomy of Anderson and Krathworhl (2001). Hence, the objectives of this research are given as follow: (1) to identify the extent of cognitive domain level implemented in online EFL classroom; (2) to find out dominant cognitive domain level taught by teachers in online EFL classroom; and (3) to identify factors affecting the implementation of cognitive domain level in online EFL classroom.

LITERATURE REVIEW

Educational Objectives: The Cognitive Domain Taxonomy

A learning taxonomy was developed in 1950 by Benjamin Bloom which known as Bloom's Taxonomy. The cognitive domain in the taxonomy has been widely utilized as the framework for developing teaching-learning activities in the classroom for decades (Collins, 2014). Its focus on cognitive objectives has been shown to assist lecturers in creating meaningful learning experiences and, as a result, valuable learning outcomes (Anderson & Krathwohl, 2001). The cognitive domain specifically addresses mental processes involved in acquiring, organizing, and applying knowledge.

In the original form of Bloom's taxonomy (1956), there are six major categories in the cognitive domain: knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom, 1956). Anderson et al. (2001) later revised this structure to reflect cognition as an active process by transforming the categories into action verbs: remember, understand, apply, analyze, evaluate and create (Krathwohl, 2002). The revision also introduced a knowledge dimension – factual, conceptual, procedural, and metacognitive – which enables teachers to analyze both the type of cognitive process and the type of knowledge involved in instruction (Coyle et al., 2010). This revised taxonomy now serves as a reference framework in curriculum design and instructional planning across disciplines.

The taxonomy organizes cognitive processes hierarchically from lower-order processes such as remembering and understanding to higher-order processes such as analyzing, evaluating, and creating (Anderson & Krathwohl, 2001; Collins, 2014). Each successive level requires more complex cognitive operations and presupposes mastery of preceding levels, which reflects the cumulative nature of cognitive development. This hierarchical structure also provides a systematic basis for distinguishing lower-order thinking skills from higher-order thinking skills and for determining the level of cognitive demand embedded in instructional tasks.

Recent educational studies apply this hierarchical model to analyze cognitive demand in both face-to-face technology-mediated learning environments (Huang et al., 2021; Lombardi et al., 2023). These studies use Bloom's revised taxonomy to examine instructional materials, classroom interaction patterns, and learning tasks in order to identify the level of cognitive engagement required from learners. Empirical findings indicate that although researchers frequently employ the taxonomy as an analytical framework, the extent to which higher-order cognitive processes appear in actual instruction depends on instructional design decisions and contextual learning conditions.

Although Bloom's taxonomy comes from a face-to-face teaching tradition, it is now widely used in online learning contexts. Experience from online classrooms suggests that translating cognitive domain levels into practice can be challenging, particularly for activities that rely on interaction and feedback, such as application, analysis, and evaluation. For this reason, teachers frequently adjust planned activities to fit the platforms they use, the level of access students have to technology, and the limited opportunities for real-time engagement available in many online classrooms.

Implementation of Higher-Order Thinking in Classroom Practice

Higher-order thinking skills (HOTS), typically associated with the levels of analyzing, evaluating and creating, are widely recognized as essential for developing critical reasoning and problem-solving abilities (Akpur, 2020; Sun et al., 2022). However, empirical research indicates that the presence of higher-order objectives in lesson plans does not necessarily guarantee their enactment during classroom instruction. For instance, Jansen & Möller (2022) demonstrated that teachers' judgements of higher-order performances can be influenced by prior lower-order student responses, suggesting that cognitive evaluation in

practice may not always align with theoretical expectations. Similarly, studies on instructional models such as flipped learning show that deliberate pedagogical structuring Is required to meaningfully promote higher-order engagement (Cheng et al., 2019; İŞÇİ & YAZICI, 2023). These findings indicate that cognitive complexity is not automatically realized through just planning alone but depends heavily on how learning activities are implemented. In addition, teachers often encounter difficulty integrating higher-order thinking tasks into instruction and assessment. Conklin (2011) elaborated that there are some ways to implement them, which are; mentioned opening lesson with questions that lead to HOTS to start discussions and debates, ending lessons with HOTS questions that are used as assessment tools, placing brainstorming activities in the middle of the lesson to encourage students to find ideas and think creatively, and provide open-ended tasks as homework to find out their creativity and understanding of the lessons that they have learned.

Research conducted in online and blended learning environments further reveals challenges in sustaining higher-order engagement. Lee et al. (2024) found that without structured guidance, students' interaction with AI-supported tools may not sufficiently foster higher-order thinking, highlighting the need for instructional scaffolding. Similarly, Xiao et al. (2025) emphasized that cognitive assessment frameworks in digital environments require systematic design to ensure valid representation of higher-order processes.

Cognitive Domain Implementation in Online and EFL Contexts

The transition to online and blended learning environments has intensified the need to examine how cognitive demands are translated into practice. While online platforms provide opportunities for collaborative and reflective tasks, they may also constrain interaction, spontaneity, and real-time scaffolding (Lin et al., 2022).Research indicates that instructional time in digital settings often prioritizes content delivery and comprehension activities, while higher-order processes such as analysis and evaluation receive less emphasis (Sun et al., 2022).

Moreover, technological limitations, student access disparities, and teachers' digital proficiency have been identified as factors influencing the depth of cognitive engagement in online classrooms (Lee et al., 2024). These findings suggest that cognitive taxonomies developed in traditional context may encounter practical challenges when applied in virtual environments.

Within English as a Foreign Language (EFL) classrooms, higher-order cognitive processes play a crucial role in meaningful language development. Application tasks involve using language for authentic communication, while analysis and evaluation support learners in interpreting texts, constructing arguments, and responding critically to ideas (Lin et al., 2022). Studies have shown that when language instruction emphasizes only remembering vocabulary and understanding grammatical structures, opportunities for communicative competence and critical language use may be limited (Akpur, 2020).

METHOD

Research Design and Context

This study employed a qualitative case study design to examine how cognitive domain levels were implemented in online EFL classrooms. A case study design allows researchers to investigate a bounded phenomenon within its real-life context (Tisdell et al., 2025; Yin, 2018). The focus of the study was on teachers' lesson planning and classroom practices during online teaching. To support the qualitative analysis, descriptive quantitative techniques, in the form of frequencies and percentages, were used in order to identify and clarify patterns in cognitive domain implementation.

Participants

The participants were six English teachers drawn from six different secondary schools in a regionally situated context in eastern Indonesia. The teachers were selected purposively because their teaching contexts matched the focus of the study. All six taught English at the secondary school level and had experience conducting online classes. They also prepared their own lesson plans for online instruction, which allowed the study to examine both planning and classroom implementation within the same teaching context.

Table 1
Characteristics of the participants

Participants	Gender (M/F)	Teaching experience (years)	Teaching online experience	Description
T1	M	5-7 years	Approximately 5 meetings (5 x 90 mins) per semester	Synchronous: Zoom virtual meeting; Asynchronous: Edlink, Edmodo, Quizziz
T2	F	5-7 years	Approximately 6 meetings (6 x 135 mins) per semester	Synchronous: Zoom virtual meeting; Asynchronous: Google Classroom, Kahoot
T3	F	13-15 years	Approximately 3 meetings (3 x 135 mins) per semester	Synchronous: Zoom virtual meeting; Asynchronous: Google Classroom
T4	M	8-10 years	Approximately 5 meetings (5 x 90 mins) per semester	Synchronous: Google Meet; Asynchronous: Google Classroom, Quizziz
T5	M	13-15 years	Approximately 6 meetings (6 x 135 mins) per semester	Synchronous: Zoom virtual meeting; Asynchronous: Edlink
T6	F	10-12 years	Approximately 5 meetings (5 x 135 mins) per semester	Synchronous: Zoom virtual meeting or Google Meet; Asynchronous: Edlink, Google Classroom

Data Collection

Data were collected using three techniques: document analysis, classroom observation, and semi-structured interviews. The use of multiple data sources was intended to allow

triangulation and to provide a more comprehensive picture of how cognitive domain levels were planned and enacted in online instruction.

(1) Document Analysis

Syllabi and lesson plans used by the six teachers during online teaching were collected and examined. Learning objectives and instructional activities contained in these documents were identified and then classified according to Bloom's Revised Taxonomy of the Cognitive Domain (Anderson & Krathwohl, 2001), which includes Remember (C1), Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5), and Create (C6). This analysis focused on how cognitive domain levels were represented at the planning stage.

(2) Observation

Classroom observation was carried out using recorded online teaching sessions, mainly from Zoom, along with other forms of digital documentation collected over one semester. Prior to data collection, all participating teachers provided informed consent for the use of their recorded sessions and instructional materials for research purposes. Each teacher was observed across approximately eight to ten online class meetings. In addition to video recordings, supporting materials such as documents, audio files, videos, and shared links were also collected. The observations aimed to identify whether the cognitive domain levels stated in the lesson plans were actually realized in online classroom activities.

(3) Semi-Structured Interviews

Semi-structured interviews were conducted with all six teachers to explore factors affecting the implementation of cognitive domain levels in online EFL classrooms. The interview questions were developed with reference to the observation findings, particularly the limited implementation of Apply (C3), Analyze (C4), and Evaluate (C5) levels. Interviews were conducted online and audio-recorded with the participants' consent.

Data Analysis

Data analysis was carried out in several steps. Lesson plans and observation data were first organized according to the six levels of Bloom's Revised Taxonomy (Bloom, 1956). The number of cognitive domain objectives identified in lesson plans was then compared with the number of objectives observed in actual online teaching. Frequencies and percentages were calculated to describe patterns of lower-order (C1–C3) and higher-order (C4–C6) cognitive domain implementation.

Interview recordings were transcribed and analyzed thematically. During this process, recurring themes related to factors influencing cognitive domain implementation were identified, including technological competence, internet access and cost, learning atmosphere, and teachers' awareness of cognitive domain levels. Finally, findings from document analysis, observation, and interviews were compared and interpreted to develop an integrated understanding of the implementation of cognitive domain levels in online EFL classrooms.

FINDINGS

This section describes data obtained from the observation and interview, as well as the result of their analysis. To find out how much and to what extent cognitive domain are able to be implemented by secondary school teachers in Bone regency, particularly in their online teaching during Covid-19 pandemic, as well as the factors that influence the implementation of the domains, both quantitative and qualitative data were utilized to provide substantial descriptions about the phenomenon.

In conducting the observation, the writer collected syllabi and lesson plans which were used by the teachers in their online teaching, then classified every learning objective and activity contained in the syllabi and lesson plans based on a taxonomy of learning, teaching, and assessing by Anderson (2001). Following this, the writer collected zoom recordings of the teachers' teaching process all meetings in one semester, as well as other teaching materials and documentation that the teachers use in their online teaching, like soft file documents, audios, videos, links, etc. The writer then analyzed all the collected data by conforming the suitability between the learning objectives in the teachers' lesson plans and the real implementation of the objectives in their online teaching. The writer used the taxonomy of learning, teaching, and assessing by Anderson (2001) again to measure the suitability. The result of the analysis is as follows:

Table 2
Teachers' Implementation of Lower-Order Thinking Skills

Teacher	C1			C2			C3		
	LP*	IM**	P	LP	IM	P	LP	IM	P
Teacher 1	19	17	89.47%	13	9	69,23%	12	2	16.66%
Teacher 2	19	19	100%	13	11	84.61%	12	3	25%
Teacher 3	19	12	63.15%	13	7	53.84%	12	1	8.33%
Teacher 4	19	15	78.94%	13	7	53.84%	12	4	33.33%
Teacher 5	19	17	89.47%	13	10	76,92%	12	0	0%
Teacher 6	19	14	73.68%	13	8	61.53%	12	1	8.33%
Mean			82.45%			66.66%			15.27%

*LP : Number of Cognitive Domain Objectives in Lesson Plan
**IM : Number of Cognitive Domain Objectives Implemented in Online Class

Table 2 shows how the teachers carried out the cognitive domain level in their online classes, particularly for the lower-order ones, namely Remember (C1), Understand (C2), and Apply (C3). In general, the teachers were able to implement activities related to remembering and understanding quite consistently. For the Remember (C1) level, implementation was above 60% for all six teachers, and one teacher was able to carry out all of the planned activities. A similar trend appeared at the Understand (C2) level. Two teachers reached implementation rates above 70%, while the others remained slightly above or around the 60% range.

The pattern was different for the Apply (C3) level. Although application-related objectives were included in the lesson plans, these were rarely realized during online teaching. In several cases, less than one fifth of the planned application activities were implemented. This suggests that while recall and comprehension were relatively easy to

support in online instruction, activities that required students to apply their knowledge were more difficult to carry out in practice.

Table 3
Teachers' Implementation of Higher-Order Thinking Skills

Teacher	C4			C5			C6		
	LP*	IM**	P	LP	IM	P	LP	IM	P
Teacher 1	8	3	37.5%	8	1	12.5%	7	7	100%
Teacher 2	8	5	62.5%	8	4	50%	7	7	100%
Teacher 3	8	3	37.5%	8	1	12.5%	7	6	85.71%
Teacher 4	8	2	25%	8	0	0%	7	7	100%
Teacher 5	8	1	12.5%	8	3	37.5%	7	5	71.42%
Teacher 6	8	5	62.5%	8	2	25%	7	6	85.71%
Mean			39.58%			22.92%			90.47%

*LP : Number of Cognitive Domain Objectives in Lesson Plan
**IM : Number of Cognitive Domain Objectives Implemented in Online Class

Table 3 shows the implementation of cognitive domain level in the teachers' online teaching, especially for the higher-order thinking skills namely Analyze (C4), Evaluate (C5), and Create (C6). Overall, the six teachers rarely conducted their online teaching in Analyze (C4) and Evaluate (C5) levels. On the other hand, nearly all the teachers accomplished 100% of the Create (C6) level teaching activities.

Table 4
Overall Implementation of Lower-Order and Higher-Order Cognitive Domain Levels in Online EFL Classrooms

Teacher	Lower-order Thinking Skills (C1, C2, C3)			Higher-order Thinking Skills (C4, C5, C6)			Overall
	LP	IM	P	LP	IM	P	
Teacher 1	44	28	63.63%	23	11	47.82%	58.20%
Teacher 2	44	33	75%	23	16	69.56%	73.13%
Teacher 3	44	20	45.45%	23	10	43.47%	44.77%
Teacher 4	44	26	59.09%	23	9	39.13%	52.23%
Teacher 5	44	27	61.36%	23	9	39.13%	53.73%
Teacher 6	44	23	52.27%	23	13	56.52%	53.73%
Mean			59.47%			49.27%	55.97%

Table 4 provides information about the teachers' implementation of cognitive domain level in their online teaching. Overall, most of the teachers show average frequency of the cognitive domain implementation, except Teacher 2 who shows quite significant use of both lower and higher-order thinking skills of cognitive domain, that is around 75%.

In order to answer the third research question about factors that influence the implementation of cognitive domain level in online EFL classrooms, the six teachers as the subject of this research were interviewed by using semi-structured interview. The interview questions are based on their performance in implementing cognitive domain in their online teaching. Taking into account the observation result, among the six levels of cognitive domain, the teachers are lack in the implementation of three levels which are *Apply* (C3), *Analyze* (C4), and *Evaluate* (C5) levels. Therefore, the interview questions focus more on

these three cognitive domains. The result of the interview is described in the following paragraphs.

Lack of technological skill

Of the six teachers who participated in this research, two teachers indicated that they found it difficult to deliver teaching materials that require the students to directly practice or act, whereas the third level of cognitive domain which is supposed to be experienced by the student in their learning is *Apply* level that require them to execute/to carry out and to implement/to use. This is why based on the observation result, the percentage of these skills implementation is merely 15.27%.

By the result of semi-structured interview that directly questioning the reason why the teachers rarely implement *Apply* (C3) level skills, it was found that the teachers conducted their online teaching only through *WhatsApp Group* and *Edmodo* that unable to create online virtual meeting. They do not have any idea about the other ICT media and online learning tools.

> "Yes, I made the lesson plan before the pandemic, so I still include activities like drama and story-telling because I never thought that the teaching would be conducted online. Because we cannot perform drama online, I just assigned my students to do some reading exercises about fairytales. Yeah… because the topic is about narrative text." (Teacher 3)

> "In my online teaching, I usually ask the students to read and understand the materials that I send via WhatsApp, then require them to answer questions related to it, and sometimes I used Edmodo to assign the students multiple-choice questions, that is all what we can do for this online teaching. We cannot do drama performance like what we did in the past, or maybe reading aloud, because we cannot meet directly in the classroom." (Teacher 5)

Beside the implementation of *Apply* (C3) level, lack of technological skill also impeded the teachers to realize *Evaluate* (C5) level that consists of some skills, such as coordinating, detecting, monitoring, testing, critiquing, and judging. The responses were obtained by directly questioning the teachers about the reasons why they did not hold group discussion and debate as how their lesson plan contains.

> "Yeah… because we are not in normal condition, I mean by the existence of this Covid-19 Pandemic, I think we cannot realize all the lesson plan objectives as how in normal condition. I think it is reasonable and acceptable as there is no way to realize it." (Teacher 3)

> "I am personally interested in discussion and debating. I really want to apply these in my online teaching, but I think it would be difficult for students to do it via WhatsApp. It will be not effective. Yeah…I hope the government allow offline teaching soon." (Teacher 5)

Cost Consumption

Different from Teacher 3 and 5 who rarely implement *Apply* (C3) and *Evaluate* (C5) levels due to lack of technological skill, Teachers 1, 2, 4, and 6 are aware of the availability of online learning tools as well as how to utilize ICT media for online learning. However, they rarely utilize those media and tools because they are costly and require plentiful internet

connection. These cost consuming media make the students show negative response to the learning. Therefore, the teachers move to the cheaper media like *WhatsApp* Group.

> "Unfortunately, many students are lazy to join the class when it is conducted via Zoom or Google Meet. They say that they do not have enough internet connection for these applications. So, I have to change some of my teaching plans. I skip reading aloud activity and just assign the students to do some exercises. That is why I decide to teach only via WhatsApp group." (Teacher 1)

> "Yeah… I used to assign my students to create video of their drama performance. I have split them into five groups. But then, only one group submits the task. Their reasons are various. Some say that they do not have appropriate camera to record, some say that they have done the video but it cannot be sent for the high capacity of the video, and so on. That is why I changed the task to be writing a folktale." (Teacher 2)

Learning Atmosphere

The implementation of *Evaluate* (C5) level is also influenced by learning atmosphere in online class because this level requires the students to coordinate, to judge, and to critique independently. According to four teachers (Teacher 1, 2, 4, & 6), the students are less motivated to give comment during group discussion through WhatsApp group because there is less learning atmosphere as how they have experienced in face-to-face classes prior the pandemic.

> "I do not know exactly why the students are very lazy to give their comment when I assign them to do group discussion on WhatsApp Group. I guess they are lazy because they think nobody cares about their comment. That is why, since then, I rarely teach through discussion." (Teacher 4)

> "Yes, I cannot deny that my students are not really active in group discussion via WhatsApp Group. However, in the past, it was really different. When I conducted group discussion in the class, I mean in the offline class, the students are enthusiastic to show their comment, even they sometimes do debate about the topic." (Teacher 6)

Awareness of Cognitive Domain Level

Among the six subjects of this study, one teacher indicated that he has low understanding about cognitive domain level. He cannot mention the six levels of cognitive domain, as well as the skills which are contained in each level. He admitted that his lesson plans were constructed only by adapting other lesson plans that He downloaded on the internet. On the other hand, the rest teachers have appropriate understanding about cognitive domain level. However, they perceived that it is not really necessary to cover every level of cognitive domain in their teaching. They believed that providing explanation and assigning some reading exercises are enough to fulfil their teaching duty. They rarely engage the students in learning activities that require *Analyze* (C4) level skills, such as differentiating, organizing, and attributing. As the result, the six teachers have low percentage of implementation for this level.

> "Even though I did not apply every level of the cognitive domain, I think, I cannot say that my teaching is not appropriate. In my opinion, as long as he gives explanation about the subject matter, then gives opportunity for the students to practice, the teacher actually has done his teaching appropriately. No

matter, in which level the teaching activity is. The most important point in teaching is whether the students understand the materials or not." (Teacher 1)

"Yes, I think my teaching activity I have done during this pandemic is appropriate and enough even though it is not as maximal as what I can conduct in offline class. I think it is enough because I always provide explanation about the subject matter by sending audio containing the explanation through WhatsApp group. Besides that, the majority of the students are active in doing their assignment. They submit their task on time." (Teacher 4)

DISCUSSION

The Extent of Cognitive Domain Implementation in Online EFL Classrooms

Looking at the extent of cognitive domain implementation in online classes, it is important to distinguish between what was planned and what was actually practiced. In online teaching, lesson plans do not always translate smoothly into classroom activities, especially when teachers have to adjust to technological and interactional limitations. As a result of the findings, teachers prepared classes in accordance with the full range of cognitive domain levels; however, these levels were not always utilized in the same way in online sessions. It is clear that teachers had an understanding of how learning occurs on a mental level because lesson plans typically included a list of goals that ranged from making things to retaining previously learned information. However, the way in which things were carried out in the classroom demonstrated that these objectives were only partially achieved.

Higher-order cognitive goals are frequently written down, but they are only partially realized in classroom interaction, according to research that was conducted in the past on English as a Foreign Language (Ramly & Abduh, 2018). This gap between establishing and carrying out plans into action is comparable. Teachers have to change what they teach all the time to meet the needs of their students, technology, and time, especially when learning happens online. In the process of learning, there was no predetermined order to the steps; rather, the way in which the lessons were taught was determined by what was effective when it was done online. The extent of cognitive implementation, therefore, should not be interpreted as a direct reflection of teachers' pedagogical competence. Instead, it reflects a form of situated decision-making in which teachers negotiated between curriculum expectations and the realities of online learning.

Dominant Cognitive Domain Levels in Online EFL Classrooms

In terms of dominant cognitive domain levels, the findings indicate that lower-order thinking skills were more frequently used in online EFL instruction. Across all observed classes, activities focusing on remembering and understanding became the main part of the teaching process. These activities were commonly delivered through text-based platforms such as WhatsApp and Edmodo, mainly in the form of teacher explanations, reading tasks, and short-answer exercises. Such activities were easier for teachers to manage in online settings and more familiar for students, which made them the most practical option during online learning.

The results show that lower-order cognitive processes were the most common in online English as a Foreign Language (EFL) classes. In all observed classrooms, activities aimed at helping students remember and understand the lesson dominated the instruction. Most of these activities were done using text-based platforms like WhatsApp and Edmodo. They included teacher explanations, reading-based tasks, and short-answer exercises. This pattern reflects common practices in Indonesian online EFL settings, where instruction often emphasizes on low-order thinking skills because such activities are more suitable for asynchronous learning and low-bandwidth conditions (Akib & Muhsin, 2020). In addition, these activities require limited technological expertise, are familiar to students, and allow teachers to manage lessons more easily despite limited student interaction.

However, the strong emphasis on remembering and understanding also indicates a limited range of cognitive engagement. In EFL learning, students need opportunities not only to comprehend input but also to apply language, analyze meaning, and evaluate ideas in order to develop communicative competence. When instruction focuses mainly on comprehension, language learning tends to become passive and form-oriented, reducing students' chances to use the language meaningfully beyond simple recognition and recall (Wahyuni et al., 2020).

At the same time, the relatively high implementation of creative tasks presents an interesting contrast. Creative activities, mostly individual writing assignments, were consistently assigned and completed. These tasks were feasible in online contexts because they did not rely on real-time interaction or collaborative engagement. Similar patterns have been observed in online EFL settings, where creative outputs are favored as assessable products rather than as processes embedded within extended cognitive scaffolding (Alsowat, 2016). Nevertheless, when creative tasks are implemented without sufficient opportunities for application, analysis, and evaluation, their cognitive value becomes limited. As Conklin (2011) argue, creative production alone does not necessarily indicate higher-order thinking unless it is supported by systematic engagement with preceding cognitive processes. The limited implementation of Apply, Analyze, and Evaluate levels indicates that higher-order cognitive processes are especially affected by limitations in instructional contexts, as higher-order tasks are frequently simplified or excluded when teachers encounter practical difficulties, despite curricular demands for promoting critical thinking (Chuwa & Maro, 2025).

Factors Influencing the Implementation of Cognitive Domain in Online EFL Classrooms

The uneven implementation of cognitive domain levels was largely shaped by contextual and structural factors. One important factor was teachers' technological competence. Teachers who relied mainly on WhatsApp and Edmodo experienced difficulties in carrying out activities that required direct language use, interaction, or immediate feedback. As a result, tasks such as role-plays, discussions, and oral performances were often replaced with reading or comprehension exercises that could be completed individually. In online EFL classrooms, limited familiarity with digital tools and the restricted features of commonly used platforms have similarly been found to reduce teachers' willingness to attempt more cognitively demanding activities.

Internet access and cost further influenced teachers' instructional choices. In Indonesian secondary schools, limited infrastructure, unstable internet access, and uneven digital competence continue to constrain the effective use of technology in English language teaching, often reducing opportunities for interactive and engaging learning activities (Azahra et al., 2025). Although some teachers were aware of interactive platforms such as Zoom or Google Meet, they avoided using them because many students lacked sufficient data access or stable internet connections. In Indonesian online education contexts, concerns about equity and student participation often take priority over pedagogical ideals, leading teachers to adjust their instructional plans accordingly. In this study, simplifying learning activities functioned as a practical response to these conditions, allowing teachers to sustain student involvement rather than abandoning higher-order cognitive objectives altogether.

Another influential factor was the learning atmosphere of online classrooms. Teachers reported low student responsiveness during discussion-based activities, particularly in text-based environments. The lack of immediate feedback, visual cues, and peer presence weakened students' motivation to respond critically, a challenge commonly observed in online EFL classrooms where meaningful interaction and a sense of classroom community are difficult to maintain (Cahyani et al., 2021). Similar concerns have also been reported in other EFL settings, where low levels of student interaction and involvement are identified as barriers to effective language learning, underscoring the importance of supportive learning environments (Tamrin, 2023).

Teachers' ideas on cognitive priorities affected how they put the plans into action. While the majority of teachers exhibited an understanding of Bloom's taxonomy, some prioritized ensuring that students comprehended the material and fulfilled assigned tasks over thorough cognitive coverage. This practical approach is in line with larger tendencies seen in post-pandemic teaching, when practicality and continuity of instruction typically take precedence over curriculum objectives (Feronica et al., 2021).

Finally, the findings indicate that the use of cognitive domain levels in online English as a Foreign Language (EFL) classes is influenced by the teacher's objectives and the contextual circumstances. Teachers were aware of cognitive development and concurred with higher-order thinking. They adapted their teaching methods to align with the economic, technological, and social realities of online learning. Consequently, daily instruction emphasized lower-order cognitive functions, but maintaining proficiency in application, analysis, and evaluation proved challenging. Higher-order thinking objectives may be evident in lesson plans; nevertheless, their attainment in practice is frequently impeded due to fragmentation and constraints.

CONCLUSION

This study shows that the implementation of cognitive domain levels in online EFL classrooms did not fully reflect what was planned in teachers' lesson plans. While teachers demonstrated awareness of the full range of cognitive levels, classroom practices were largely concentrated on remembering and understanding. Activities that required students to apply, analyze, or evaluate language were more difficult to sustain in online settings,

mainly due to limited interaction, technological constraints, and students' varying access to the internet. Creative tasks were frequently assigned, but they often functioned as isolated outputs rather than as part of a continuous cognitive learning process. These findings highlight that the gap between planning and practice in online EFL instruction is shaped more by contextual realities than by teachers' lack of pedagogical understanding. Teachers adapted their instruction to ensure participation and continuity, even when this meant limiting cognitive depth. This study contributes to existing research by showing how cognitive domain implementation in online classrooms is closely linked to technological, economic, and interactional conditions. The study is limited by its small number of participants and its focus on a single context. Future research may involve broader settings, include students' perspectives, or examine specific strategies and digital tools that can better support higher-order cognitive engagement in online EFL learning.

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