Descriptive Analysis of Student Engagement in Digital-Mediated English Language Classrooms

Engelina Salainti
engelina@unklab.ac.id

Alan Hubert Frederick Sanger
alansanger@unklab.ac.id

Universitas Klabat

ABSTRACT

The rapid integration of digital technology, especially in education, has provided a changing landscape in English language learning, leading to the importance of student engagement for success in learning. The purpose of this study is to analyze the levels and dimensions of engagement of EFL students from different majors in digitally mediated general English classes at the university level. A descriptive quantitative approach and a structured questionnaire instrument were used to measure emotional, cognitive, and technological behavioral engagement on a 1- 5-point Likert scale. Descriptive statistics, including mean, level of perceptions, and presentation distribution, were used to analyze the data. The results showed that the students were at a high level of emotional engagement (3.88) and cognitive engagement (3.78), and behavioral engagement (3.17) was at a moderate level. The findings suggest that students are generally engaged in digitally mediated English classes, but behavioral engagement remains a challenge. It is concluded that enhancing supportive and interactive elements can improve behavioral, as well as language learning outcomes.
Keywords: Digital-Mediated Learning; English Language Classrooms; Student Engagement

INTRODUCTION

Over the past few decades, the education system has undergone a remarkable transformation driven by the rapid advancement of information and communication technology (ICT). The integration of technology into education has reshaped traditional teaching and learning methods, offering new ways to access, deliver, and interact with knowledge. The evolution of digital tools such as computers, mobile devices, and cloud-based applications has enabled a shift from teacher-centered to learner-centered classrooms, where students can participate more actively and autonomously in their own learning process (Zou et al., 2025). With the rise of online discussions, interactive learning applications, and virtual classrooms, learning is no longer confined by physical space or time. Through these digital platforms, students can communicate both synchronously and asynchronously,

exchange ideas, and collaborate to complete projects, which fosters engagement, teamwork, and digital literacy (Chibb & Fatima, 2024).

The widespread adoption of technology has created new opportunities to enhance English language learning. Digital tools not only serve as media for presentation and practice but also act as interactive spaces for meaningful communication between teachers and students. For example, online discussion forums, language learning apps, and video conferencing tools such as Zoom and Google Meet facilitate authentic communication and immediate feedback, both of which are essential for developing language proficiency (Mahdi, 2025). Moreover, features such as gamification, digital storytelling, and multimedia integration have been found to increase students' motivation and enjoyment in language learning (Kumar, 2024). These interactive approaches promote deeper engagement by combining cognitive, behavioral, and emotional aspects of learning three dimensions recognized as vital in maintaining sustained participation and interest (Fredricks et al., 2019; Zou et al., 2025).

However, despite these advancements, technology-mediated learning environments also bring challenges. Some of the most pressing issues include unequal access to devices and stable internet connections, insufficient digital literacy among teachers and students, and the risk of reduced face-to-face interaction (Fentari, 2025). These challenges can lead to disengagement or superficial participation if not properly addressed. Therefore, while technology can enhance flexibility and accessibility, it should be balanced with strategies that preserve meaningful human interaction and social presence. Blended learning models, which combine online and offline instruction, have been widely recommended as effective approaches to maintaining a balance between digital efficiency and interpersonal connection (Song, 2025).

In the context of English language learning, engagement plays a critical role in determining student success. Student engagement is not limited to mere participation but encompasses enthusiasm, commitment, and active involvement in cognitive and emotional dimensions of learning (Mahdi, 2025). High engagement levels have been shown to correlate positively with language achievement, persistence, and self-regulated learning (Kahu & Nelson, 2018; Kumar, 2024). As digital media continue to evolve, the concept of engagement has expanded to include new forms of interaction such as peer collaboration through online platforms, self-paced learning in adaptive systems, and feedback-based learning analytics that allow teachers to monitor progress in real time (Fentari, 2025).

The digital-mediated English classroom, therefore, represents more than just the use of technology; it functions as a complex learning ecosystem that integrates technology, pedagogy, and social interaction. Within this system, teachers act as facilitators who design, guide, and support learning activities, while students take more active roles in exploring and constructing knowledge. When used effectively, digital media can foster active participation, critical thinking, and collaboration skills that are vital for communication in the 21st century (Chibb & Fatima, 2024;

Zou et al., 2025). However, the success of such integration depends on the teacher's pedagogical readiness, institutional support, and the alignment between technological tools and learning objectives (Mahdi, 2025).

Given this context, investigating students' engagement in digitally mediated English classrooms becomes crucial. Understanding how students participate, what kinds of support they receive, and the challenges they face can provide valuable insights into improving instructional design. This study therefore focuses on a descriptive analysis of students' engagement in digital-mediated English classrooms, examining behavioral, emotional, and cognitive aspects of engagement. The findings are expected to contribute not only to the theoretical understanding of engagement in technology-enhanced learning but also to the practical development of English teaching strategies that are adaptive, inclusive, and responsive to students' digital learning experiences. Ultimately, by identifying the dynamics of engagement, educators can design more effective and holistic learning environments that promote motivation, interaction, and achievement in English language learning.

LITERATURE REVIEW

The use of digital technology in English language learning has become crucial role in the last few years. Digital media is used to refresh the English language learning method, especially for teachers who help them to design and use digital media that suits students' characteristics and learning materials. Some digital media, such as videos, may improve students' speaking and listening ability and stimulate their creativity and imagination. As well as a digital teaching book that may improve teachers' understanding in designing learning material based on the curriculum they use, even though it needs more research to see the impact on student learning outcomes.

The students' engagement in a digital-mediated English language learning is influenced by teachers' competition in using technology. The teachers need to improve their technology literacy to create a better learning environment and motivate the students. The innovation of Artificial Intelligence in English language learning offers big potential in improving students' speaking skills, especially in writing, reading, and speaking. In the context of student engagement, it is crucial to ensure that the digital learning method is not only interactive but also relevant to the students' needs and technology development. This matter may help in improving the emotional, cognitive, and behavioral engagement of the students in the learning process.

One of the studies about digital-mediated learning investigated by involved 84 agricultural students majoring in the Agroecotechnology program who were enrolled in an English course, using the data of pre-test and post-test as well as questionnaires. The study was analyzed through descriptive and inferential statistics, and the findings revealed that digital-mediated extensive reading

significantly improved students' reading comprehension in an English for Academic Purposes (EAP) context. Additionally, students reported that this approach offered flexibility, effective use of technology, and enhanced their reading experience. This finding aligns with other research that shows that reading extensively using digital supports vocabulary mastery and learning motivation. Learning using digital media does not always have a positive impact on its users, especially teachers. A study conducted by (Putera, 2025) revealed that teachers at a madrasah faced difficulties in integrating authentic English language learning delivered through digital media. Therefore, targeted special training is essential for teachers, especially in rural and semi-rural areas where technology is not yet widely used by the community, particularly in educational settings. This poses a considerable challenge in improving digitally mediated learning. (García-Sánchez, 2012) stated that "the combination of face-to-face lessons with multimedia content and digital mediated learning allows today's native students to enhance their independent learning abilities when it best suits them". When combining multimedia content and digitally mediated face-to-face learning, students are now able to improve their independent learning skills. Through this method, students can learn flexibly, adjusting their study time to suit their comfort and needs, giving them the freedom to manage the learning process effectively and independently.

Digital-mediated learning processes include learning that uses technology. Several studies have focused on language learning using technology both inside and outside the classroom. Research findings from ((Abaker, 2022)) indicate that participants use technology to learn English independently, with smartphones being the most commonly used device. Among various applications, YouTube emerges as the best platform for learning English through videos and films. With technology, numerous opportunities are available, including easily accessible learning resources and convenient access that support the improvement of language skills outside the classroom environment. "The significant indicators of success are the students' levels of familiarity and satisfaction with digitally-mediated reading courses and their perceptions of the challenges they face in putting the technology to use. In contrast to the greater consensus among faculty members, most students had a poor impression of the ease with which digitally-mediated reading courses were used" ((Binti Shahlee, 2021). The main indicator of success in this part is the level of students' understanding and satisfaction with the reading course in digital-mediated, and how they face the challenges in using the technology. A more varied agreement among the lecturers, some students have a negative opinion or feel difficulties in using mediated digital tools for the reading course. In other words, even students who think the use of technology is easy still find it difficult. (Thalib et al., 2024) stated that in this time of digital transformation, educators are required to be able to adapt to the influence of technology development, which can affect their performance not only in the teaching and learning process but also in providing material. In this technological age, both older and younger educators are required to adapt to developments in digital technology, which undoubtedly influence their teaching processes, particularly in terms of delivering learning materials. Good digital competence has a positive and significant impact on the success of digital

transformation. Therefore, mastery of digital technology is key for teachers to support change and progress in learning in this digital age.

The digital understanding has proven that digital technology successfully helps students understand stories by listening, watching, and reading simultaneously. Digital understanding is in line with the components of Bloom's Taxonomy, namely remembering, understanding, applying, analyzing, evaluating, and creating, as stated by ((Noordan & Md. Yunus, 2022) "Digital Comprehension has proved that it has successfully helped these pupils to comprehend a story by listening, watching, and reading at the same time. Plus, it correlates the most to the six components in Bloom's Taxonomy, which are Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating. The way we learn languages has undergone significant changes with the development of technology. Technology allows students to interact with teachers and classmates through interactive video conferencing tools. Advanced technology has made it possible to use digital media for second language learning, facilitating direct communication and collaboration between learners. Task-Based Language Teaching (TBLT) has opened up new opportunities for learning English. According to (Guo et al., 2025)In the evolution of technology, the dynamics of language learning have transformed dramatical, and enable the students to engage with their lecturers and friends by using videoconferencing tools as digital-mediated tools which facilitate them and give them new opportunities for Task-Based Language Learning.

METHOD

Design and Sample

This study employed a descriptive quantitative design to collect and analyze numerical data describing students' engagement in digitally mediated English classrooms. The purpose was to provide a clear and comprehensive overview of students' engagement across behavioral, emotional, and cognitive dimensions without applying any intervention or correlation testing. This approach allowed the researcher to identify engagement levels objectively and systematically using measurable data that could be analyzed statistically.

The participants in this study were 40 students from several faculties at Klabat University in Manado, aged between 18 and 24 years old, who were enrolled in the General English Class during the second semester of the 2024/2025 academic year. All participants were actively involved in English learning activities that integrated digital media. Before completing the questionnaire, respondents were informed about the purpose of the research and their rights as participants. Their participation was voluntary, and they could withdraw at any time without consequence. This ensured that the respondents had relevant experiences with technology-supported English learning, making their input valuable for the study.

Instrument and Procedure

The primary research instrument was a structured questionnaire designed to measure students' engagement across three dimensions: emotional, cognitive, and behavioral. The emotional engagement items assessed students' feelings and attitudes toward learning, such as interest, enthusiasm, and comfort in attending digital-mediated English classes. The cognitive engagement items focused on students' mental effort and strategies in understanding and mastering materials, including focusing, problem solving, and information processing. The behavioral engagement items measured students' active participation in technology-based learning activities, such as their frequency of interaction with digital platforms and use of online learning features.

The questionnaire used a five-point Likert scale (1–5) to measure students' agreement with each statement, ranging from "strongly disagree" to "strongly agree." It was adapted from Maryam et al. (2023) and consisted of 39 items, organized into three sections: behavioral engagement (items 1–13), emotional engagement (items 14–22), and cognitive engagement (items 23–39). The questionnaire was distributed to students enrolled in General English classes using digital media. Participants completed the questionnaire independently, reflecting on their learning experiences. This instrument was effective in identifying which aspects of engagement especially behavioral engagement required improvement, offering a foundation for designing more interactive and engaging digital learning environments.

Data Analysis

Before analysis, all collected data were checked for completeness and consistency. Responses were numerically coded according to the Likert scale to enable statistical processing. Descriptive statistics, including means and percentage distributions, were used to analyze the levels of emotional, cognitive, and behavioral engagement. To interpret the results, the study used the Five Ranges Scale Value of Students' Perception developed by Sirirojjananan, which classifies students' engagement levels as shown in the table below:

Scale Value	Level of Perception
4.21 – 5.00	Very High
3.41 – 4.20	High
2.61 – 3.40	Moderate
1.81 – 2.60	Low
1.00 – 1.80	Very Low

This analysis method provided a clear and structured understanding of the degree to which students were emotionally, cognitively, and behaviorally engaged in digitally mediated English learning.

FINDINGS AND DISCUSSION

Participants' Characteristics

To begin the data presentation, the demographic characteristic of the respondent is presented. Based on the chart below, which shows the respondents' age demographic characteristics, the majority of respondents are 18 years old, with the biggest proportion being 42% of the respondents. This shows that almost half of the students who engaged in the research are in this age group. A group of 19-year-olds is in the second position with the amount of 30%, which is a significant part of this sample as well. The 20-year-old respondents are about 10%; this shows that there were a few respondents who were older than the main age. There were 5% respondents 21 years old, 23 years old, and 24 years old. The fewest respondents were in the age of 22 years old, which is only 3%. Overall, the data showed that most of the students who became respondents were at a young age, which is between 18 to 20 years old, with the total percentage reaching 82%. While the rest were between the ages of 21-24 years old. This showed that the students' demographic characteristics were at an early age among university students.
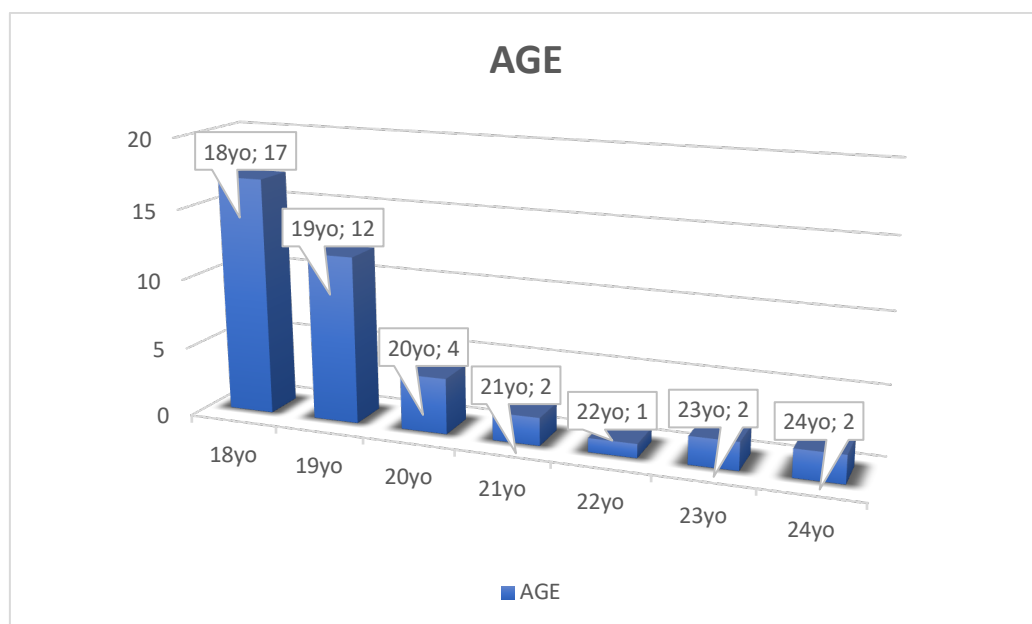

Figure 1. *The percentage of the age distributions of the respondents*

According to the chart below, which shows the distribution of the faculty of the respondents, it can be explained as follows: the nursing faculty gives the biggest contribution of the respondents, which is 32% of the total respondents of the research. It shows that almost one-third of the respondents are from this faculty. The second position was from the faculty of Computer Science with 28%, which became a significant sample. The Economic and Business faculty contributed 25% of the total respondents, which was in the third position. The proportion of the Theology faculty was 15%, which was the smallest faculty participating. The

Education faculty had no respondents who participated; it showed 0%. Overall, this data showed that the respondents of this research were from several faculties that dominated the Nursing, Computer, and Business faculties. This distribution gave an overview that the students' engagement was from the various backgrounds of faculty, which influenced the variation of engagement in the digital-mediated English Class.
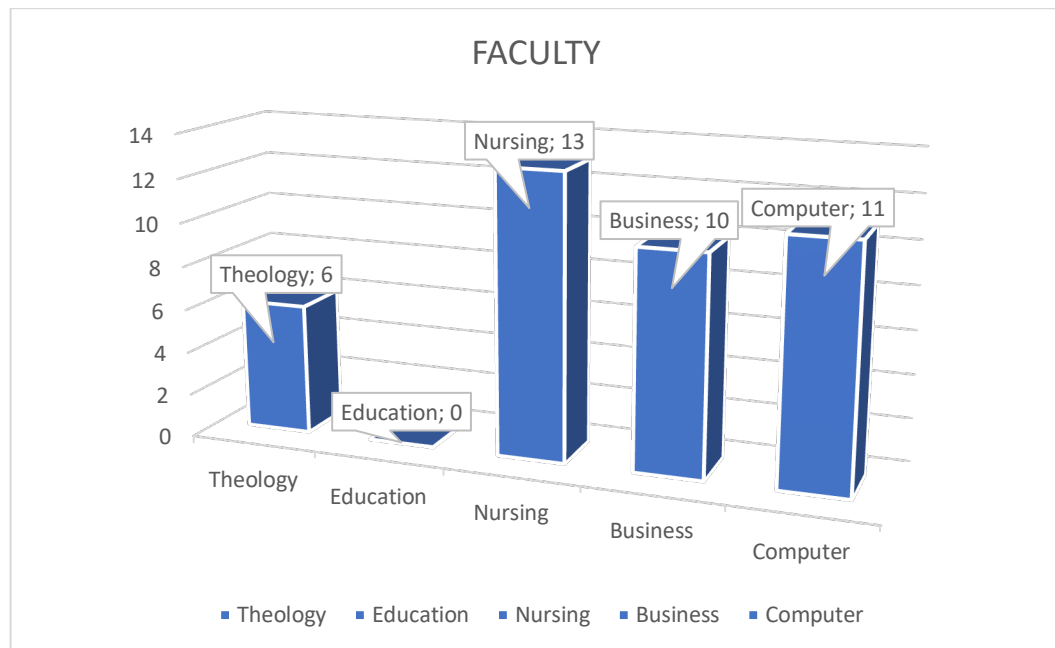

Figure 2. *The percentage of faculty from the respondents*

Table 1 below shows the average scores (mean), perception levels, and rankings of various indicators of student behavioral engagement in digital learning. Indicators BE 1 and BE 2 have the highest average scores (4.72 and 4.52) with a perception level of "Very High," indicating that these aspects are very strong in student behavioral engagement. Some indicators such as BE 3, BE 6, and BE 10 also show a perception level of "High," with average scores above 3.7. Conversely, indicators such as BE 7 and BE 8 have the lowest average scores (1.45 and 2.30) with perceptions of "Very Low" and "Low," indicating areas of behavioral engagement that require more attention. The overall average of student behavioral engagement is 3.17, which falls into the Moderate category. Overall, student behavioral engagement in digitally mediated English classes is moderate. While some behavioral aspects show very high engagement levels, others exhibit low to very low engagement levels. This indicates that while students demonstrate active participation in certain areas, there are still challenges in enhancing overall behavioral engagement. Therefore, efforts are needed to strengthen the aspects of behavior that are still weak so that student engagement can be optimized in digital learning.

Table 1. *Students' Behavioral Engagement*

Behavioral Engagement	MEAN	Perception Level	RANK
BE 1	4.72	Very High	1
BE 2	4.52	Very High	2
BE 3	3.90	High	4
BE 4	2.70	Moderate	9
BE 5	2.57	Low	10
BE 6	4.12	High	3
BE 7	1.45	Very Low	13
BE 8	2.30	Low	12
BE 9	3.05	Moderate	7
BE 10	3.72	High	5
BE 11	2.37	Low	11
BE 12	2.72	Moderate	8
BE 13	3.15	Moderate	6
AVERAGE	**3.17**	**Moderate**	

Table 2 below shows the average scores (mean), perception levels, and rankings of various indicators of student emotional engagement in digital learning. Indicator EE 14 has the highest average score of 4.25 with a perception of "Very High," indicating that this emotional aspect is strongly felt by students. Most of the other indicators have average values ranging from 3.65 to 4.10 with a perception level of "High," indicating that students' emotional engagement is quite high across various aspects. The overall average emotional engagement of students is 3.88, which falls into the High category. Overall, students' emotional engagement in digitally mediated English classes is high. This indicates that students generally have positive feelings, interest, and strong motivation during digital learning. This high level of emotional engagement is an important factor that can support learning success and enhance students' overall learning experience.

Table 2. *Students' Emotional Engagement*

Emotional Engagement	MEAN	Perception Level	RANK
EE 14	4.25	Very High	1
EE 15	3.70	High	5
EE 16	3.65	High	8
EE 17	3.67	High	7
EE 18	3.80	High	4
EE 19	4.10	High	2
EE 20	4.10	High	2
EE 21	3.67	High	6
EE 22	4.02	High	3

AVERAGE	**3.88**	**High**	

Table shows the average scores (mean), perception levels, and rankings of various indicators of student cognitive engagement in digital learning. Some indicators, such as CE 39 (4.90), CE 28 (4.35), CE 38 (4.32), and CE 24 (4.25), show a "Very High" perception, indicating that these aspects are very strong in student cognitive engagement. Most of the other indicators have average values ranging from 3.60 to 4.20 with a "High" perception, indicating fairly high cognitive engagement across various aspects. However, there are some indicators with lower average values, such as CE 36 (2.60), CE 33 (2.90), and CE 32 (3.05), which fall into the "Low" to "Moderate" categories, indicating areas of cognitive engagement that need improvement. The overall average cognitive engagement of students is 3.78, which falls into the "High" category. Overall, students' cognitive engagement in digitally mediated English classes is relatively high. This indicates that students actively use their thinking skills, such as understanding, analyzing, and applying learning materials in depth. However, there are still some aspects of cognitive engagement that are at a moderate to low level, indicating the need for efforts to improve students' focus and learning strategies so that cognitive engagement can be optimized. This high level of cognitive engagement is crucial for supporting effective and deep learning outcomes.

Table 3. *Students' Cognitive Engagement*

Cognitive Engagement	MEAN	Perception Level	RANK
CE 23	4.20	High	5
CE 24	4.25	Very High	4
CE 25	3.17	Moderate	13
CE 26	4.20	High	5
CE 27	4.00	High	7
CE 28	4.35	Very High	2
CE 29	4.10	High	6
CE 30	3.80	High	9
CE 31	3.87	High	8
CE 32	3.05	Moderate	14
CE 33	2.90	Moderate	15
CE 34	3.67	High	10
CE 35	3.37	Moderate	12
CE 36	2.60	Low	16
CE 37	3.60	High	11
CE 38	4.32	Very High	3
CE 39	4.90	Very High	1
AVERAGE	**3.78**	**High**	

The findings of this study reveal important insights about students' behavioral, emotional, and cognitive engagement in digitally mediated English classrooms. Overall, the results show that emotional and cognitive engagement are generally high, while behavioral engagement remains moderate. This means that although students respond positively and think actively in digital learning environments, their active participation and consistency in behavior still need improvement.

Behavioral engagement results indicate a moderate level, with an overall mean of 3.17. The highest indicators, BE1 (4.72) and BE2 (4.52), reflect very high engagement in activities such as logging in on time, accessing materials, and following instructions. These findings are consistent with Mahdi (2025) and Zou et al. (2025), who noted that interactive features in digital platforms can promote punctuality and consistent participation. However, indicators BE7 (1.45) and BE8 (2.30) received low to very low scores, showing that students are less engaged in certain activities, such as extended collaboration or self-initiated interaction. This suggests that while students participate actively when guided by the teacher, they may struggle to maintain engagement in autonomous or peer-led digital activities. Similar patterns were found by Kumar (2024) and Fentari (2025), who reported that self-regulation and sustained attention are common challenges in online learning. Therefore, to enhance behavioral engagement, teachers should consider incorporating gamified elements, polls, or peer-based projects that motivate students to interact more actively throughout the course.

Emotional engagement demonstrates a stronger result, with an overall mean of 3.88 categorized as high. The highest indicator, EE14 (4.25), along with EE19 and EE20 (4.10 each), shows that students experience positive feelings toward their digital learning experience. They feel motivated, enthusiastic, and comfortable participating in online English classes. These results align with Song (2025) and Zou et al. (2025), who emphasized that emotionally positive learning environments lead to sustained attention and increased academic satisfaction. The high emotional engagement also shows that students find digital media appealing and view it as a supportive platform for learning. According to Fredricks et al. (2019), emotional engagement plays an essential role in maintaining focus and persistence in learning. Although all emotional indicators reached the high category, teachers should continue to develop activities that nurture emotional connection, such as reflective tasks, group discussions, and interactive video-based learning. These strategies can help maintain motivation and reduce feelings of isolation that occasionally appear in digital settings (Fentari, 2025).

Cognitive engagement results also show a high level of involvement, with an overall mean score of 3.78. The highest indicators, CE39 (4.90), CE28 (4.35), CE38 (4.32), and CE24 (4.25), demonstrate that students are mentally active in understanding, analyzing, and applying the learning materials. These findings correspond with Kumar (2024), who highlighted that digital platforms promote critical thinking and deeper understanding through multimedia resources and problem-based learning. However, several indicators such as CE36 (2.60), CE33

(2.90), and CE32 (3.05) are lower, showing that not all students maintain strong focus or use higher-level thinking strategies. Chibb and Fatima (2024) noted that digital literacy and multitasking ability influence how effectively students engage cognitively in online environments. Therefore, teachers should design inquiry-based and problem-solving activities that challenge students to think critically and apply their knowledge to real-world contexts.

Taken together, the findings suggest that students in digital English learning environments are emotionally and cognitively involved but still need support to strengthen behavioral engagement. The results indicate that while students appreciate and benefit from digital tools, their participation tends to depend on structured tasks rather than independent or exploratory learning. This aligns with the observations of Zou et al. (2025), who argued that digital engagement becomes meaningful only when technology is combined with interactive pedagogy. Mahdi (2025) also emphasized that teachers play a central role in promoting engagement through careful integration of technology, motivation, and student-centered practices.

The study shows that digitally mediated English learning at Klabat University has successfully created a positive emotional atmosphere and encouraged strong cognitive involvement among students. However, behavioral engagement requires further attention, particularly in fostering active participation and autonomy. Strengthening these aspects through collaborative tasks, interactive tools, and personalized feedback can enhance students' overall engagement. When technological innovation is integrated with thoughtful teaching strategies, digital learning can become not only accessible and flexible but also deeply engaging and effective for language development.

CONCLUSION

This study showed that students' engagement in English language learning that was digital mediated had three variations in some engagement dimensions. Generally, the students showed high emotional and cognitive engagements, which reflect interests, motivations, and a strong mental effort in participating in digital learning. However, behavioral engagements, which are related to active and interactive participation with technology, were still at the moderate level and became a challenge that needs more attention. These findings emphasized the importance of learning strategy development that does not merely depend on the technology as the medium of communication but also strengthens the interactive and collaborative aspects to make the students more active behaviorally. Besides, the supports of sufficient digital infrastructure and teachers' training are needed to create an effective and enjoyable of digital learning environment. Therefore, the improvement of the students' engagement in digital classes can encourage learning outcomes to be optimal in the modern learning era.

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