Enhancing EFL Higher Education through Fliki Videos: An Artificial Intelligence Implementation Approach

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Abstract

Artificial Intelligence (AI) presents different opportunities for enhancing personalized learning experiences within the field of English as a Foreign Language (EFL) education. Its capacity for adaptive learning is particularly noteworthy, as it caters to individual students' unique styles. In this context, the purpose of this study was to investigate the impact of Fliki AI videos on EFL teaching and learning and determine students' perceptions of their use. The participants included 84 pre-service EFL teachers at a private university in Ecuador. A mixed-method design was used to analyze quantitative and qualitative data. Instruments were diagnostic and perception questionnaires and an interview. The main findings revealed that Fliki AI videos effectively enhanced student engagement and comprehension. Additionally, participants reported improved understanding of linguistic and pedagogical concepts through clear explanations and visual representations provided by the videos. The adaptability of Fliki AI videos allowed for personalized learning experiences, while supplementary activities reinforced learning outcomes. Further research could explore optimal design features and instructional strategies for maximizing the effectiveness of these resources.

Keywords: artificial intelligence, EFL teaching, Fliki, videos

1. Introduction

In the digital age, technology plays a crucial role in supporting the learning process and is rapidly expanding worldwide (Alqahtani, 2019; Jie & Sunze, 2023). Integrating technology in education has led to innovative teaching and learning approaches, leveraging advanced tools to enhance educational paradigms (Chee et al., 2017). Twenty-first-century citizens now live in a world where AI is universal and widely confirmed as a tool that can improve and progress every aspect of our lives (Gorriz et al., 2020). In this regard, AI in the EFL context in higher education provides teachers with new ways to increase the effectiveness and level of their instruction (Chun, 2020). Moreover, AI can support personalized learning and offer quick feedback, which may improve learning satisfaction (Pokrivcakova, 2019). In certain ways, AI is augmenting or replacing some of the tasks that EFL teachers undertake; for example, evaluating students (Tlili et al., 2021), reviewing tasks, assigning grades, and editing writing and pronunciation (Florea & Radu, 2019). Consequently, implementing AI tools in the EFL classroom can have the potential to revolutionize education by offering individualized learning experiences that supply students' needs and preferences (Hwang et al., 2020).

In this regard, AI-driven tools have immense potential to revolutionize the EFL teaching and learning experience (Aggarwal, 2023; Jiang, 2022; Zhang et al.,2023). By incorporating these advanced technologies in the EFL classroom, educators can foster dynamic learning environments, increase student engagement, enhance motivation levels, and identify areas for improvement. Besides, encouraging collaboration and cultivating professional learning communities focused on AI integration enriches educators' ability to harness the full potential of AI tools in language education (Belda-Medina et al., 2024). In language education, AI tools significantly ease language learning, offering enhanced capabilities that reshape learning experiences (Cope, 2021; Rintaningrum & Aldous, 2016). AI language learning tools, utilizing algorithms, provide time-efficient, and increased cultural understanding (Rebolledo, 2023). AI tools enhance content creation efficiency and quality, with innovative tools like FLIKI, which offers educators the means to construct tailored, high-quality educational resources to meet students' needs (Huang et al., 2024; Ruiz-Rojas et al., 2023). Furthermore, Fliki facilitates the creation of engaging video content, highlighting the transformative potential of AI in education (Fliki, 2024). Due to the changes in EFL teaching and learning methods arising from the emergence of AI, it is essential to have innovative tools that allow for a better language learning experience. Therefore, this study aims to investigate the impact of the Fliki tool on the creation of interactive videos based on artificial intelligence; hence it quantitatively measures the participants' level of agreement or disagreement regarding its implementation. For this reason, the following research questions will be addressed:

RQ1: What is the impact of Fliki videos based on artificial intelligence in EFL teaching and learning?

RQ2: What are students' perceptions about the implementation of Fliki videos based on artificial intelligence in EFL teaching and learning?

2. Literature Review

2.1 Artificial Intelligence in Higher Education

A contemporary understanding of AI, according to Popenici et al. (2017), describes it as computing systems capable of performing tasks like human processes, including learning, adapting, synthesizing, self-correcting, and utilizing data for complex processing. In the modern era, Artificial Intelligence and the array of devices that come with it are critical for both the development of students' language skills and the maintenance of their interest in the learning process. This is particularly true in higher education where the use of new AI tools has increased quickly in the last few years (Chu et al., 2022; Duan et al. 2019). Moreover, according to Chen et al. (2020), AI offers instructors and students some benefits such as reviewing and grading assignments more effectively, higher-quality teaching activities by leveraging machine learning and adaptability, and customization and personalization of curriculum based on students' needs.

Bedenlier et al. (2020) highlight the increasing significance of AI technologies in higher education, emphasizing their role in crafting personalized, adaptable, and interactive learning environments. Similarly, Singh (2023) asserts that AI has become a disruptive force that is changing the conventional models of teaching, and learning. These technologies also provide teachers with valuable insights into students' learning profiles, enabling prompt support and intervention as needed. Therefore, as stated by Popenici and Kerr (2017), the rise of AI prompts a crucial debate on its role in higher education, forcing universities to reconsider teaching methods due to rapid technological advancement and job displacement. In this context, AI has emerged as a promising tool in language learning and teaching to improve students' learning outcomes (Huang et al., 2023).

2.2 The Role of Artificial Intelligence in EFL Teaching and Learning

Artificial intelligence is increasingly integrated into various fields, including education, offering innovative solutions to enhance and personalize teaching and learning experiences (Aggarwal, 2023; Tapalova & Zhiyenbayeva, 2022). In the field of EFL education, AI presents significant potential for personalized and adaptive learning according to students' styles and individual needs (Moybeka, et al. 2023; Zhang et al. 2023). Certainly, AI holds promise in improving the EFL teaching and learning dynamics, potentially increasing students' engagement, and motivation to learn (Jiang, 2022). The incorporation of AI tools into EFL teaching reveals the importance of adopting diverse methodologies, emphasizing the need for thorough methodological transparency and ethical awareness. This ensures that the integration of AI into English language learning should be aligned with ethical principles to serve its intended purpose effectively (Manire et al., 2023).

Furthermore, it is necessary to emphasize that AI-powered platforms and applications offer EFL students access to customized language learning materials, instant feedback, as well as interactive practice exercises (Kohnke et al., 2023). Within this framework, EFL teachers should develop their capacity to create an atmosphere of innovation and adaptability in the EFL classroom. This means that EFL instructors should be able to embrace new approaches and enhance student learning outcomes. Besides, promoting collaboration and nurturing professional learning communities focused on AI integration can facilitate the sharing of knowledge and mutual support among educators, thus strengthening their capacity to utilize AI tools effectively in language education (Belda-Medina et al., 2024).

2.3 Artificial Intelligence Tools in Language Education

In the digital age, technology is viewed as an efficient way to support the learning process (Alqahtani, 2019), which is quickly spreading throughout the world (Jie & Sunze, 2023). According to Chee et al. (2017), the rise of technology has catalyzed the advent of innovative approaches to teaching and learning, leveraging advanced technological support to enhance educational paradigms. Therefore, technology integration in language education has emerged as a crucial area of focus in contemporary pedagogy. Rintaningrum and Aldous (2016) affirm that students find it easier to learn English when they have some technological facilities for learning this language. Certainly, the incorporation of various AI tools has significantly transformed language learning experiences since they offer many new possibilities and capabilities that enhance and reshape learning (Cope, 2021).

As Rebolledo (2023) acknowledges, AI language learning tools are software applications or computer programs utilizing algorithms to assist individuals in acquiring and enhancing their foreign language skills. These technologies offer numerous advantages, including time efficiency, accelerated learning, personalized learning experiences, and increased cultural understanding for students. Huang et al. (2024, p.1) state that "Artificial intelligence generated content (AIGC) has emerged as a promising technology to improve the efficiency, quality, diversity, and flexibility of the content creation process by adopting a variety of generative AI models". Among the diversity of available AI alternatives such as learning software, chatbots, and voice recognition systems, Fliki (https://fliki.ai/) is a tool designed to create educational content that can help teachers construct personalized, high-quality educational tools that are specifically designed to meet the unique needs of their students (Ruiz-Rojas et al., 2023). Furthermore, Fliki is a useful tool that can convert text into video and speech, facilitating the rapid creation of high-quality audio and video content, and allowing users to produce engaging multimedia in just minutes (Fliki, 2024).

2.4 Previous Studies

The study by El Shazly (2021) aimed to investigate the impact of AI applications on English speaking anxiety and speaking performance in an EFL context. The study involved 48 undergraduate participants enrolled in an EFL class in Egypt. These learners were exposed to AI applications during the study. The research involved an eight-week quasi-experimental pretest–posttest design. Learner anxiety levels were measured using a 33-item Foreign Language Anxiety (FLA) questionnaire and oral proficiency was assessed through role-playing

using an interaction-enhanced public version of the IELTS speaking evaluation rubric. The study concludes that FLA plays an underexplored facilitative role in sharpening learners' cognitive faculties and linguistic capacities. AI chatbots hold promise for significantly improving linguistic output gains, but further development is needed. Overall, AI chatbots have potential in EFL contexts, facilitating improved interaction and oral communication. These findings support the integration of AI technologies as effective tools in foreign language education, providing flexible, interactive, and learner-centered learning.

Another study conducted by Yuan (2023) examined the effectiveness of using chatbots in EFL classrooms at a Chinese school. Seventy-four students were involved in the study. These students were divided into two groups: one group employed traditional teaching methods and the other group used chatbots. The researcher used an experimental pretest-posttest design. Pre- and post-tests were used to measure students' oral English proficiency. A questionnaire was employed to assess students' willingness to communicate. Data from interviews with teachers and students provided insights into chatbot usage and modification. Data analysis involved using SPSS to identify significant differences in pre-and post-test scores and NVivo 11 to code qualitative feedback from interviews. The results showed that chatbot integration significantly improved both oral English proficiency and willingness to communicate in the experimental group compared with the control group. It is suggested that teachers can enhance instruction by adopting tailored chatbot features to refine teaching methods, creating a more adaptive learning path for students.

Belda-Medina and Goddard (2024) conducted a study to investigate the implementation of AI tools and digital storytelling in EFL education, focusing on pre-service teachers. The research aimed to assess pre-service teachers' familiarity with AI tools for EFL material creation, explore their attitudes toward AI in language education, and evaluate the impact of collaborative digital storytelling projects on their perspectives regarding AI integration in education. Using a mixed-methods approach, the study involved 115 pre-service teachers, employing quantitative tools like pre-post-tests based on the Technology Acceptance Model (TAM) and qualitative methods such as class discussions. Results reveal a lack of prior knowledge about AI tools among pre-service teachers, but a generally positive attitude toward their integration into language education. Engaging in collaborative digital storytelling projects using AI tools positively influences pre-service teachers' perceptions, suggesting the value of hands-on learning experiences in teacher training programs. The study emphasizes the importance of incorporating AI and digital storytelling into teacher education curricula to better equip pre-service teachers for the evolving landscape of digital learning in EFL contexts.

Zou et al. (2023) examined how social network-based interaction influences students' English-speaking practice with the aid of AI-speaking apps in China. Seventy students from various Chinese universities and disciplines participated in the experiment during the summer break. They were tasked with practicing their speaking skills with AI apps for five weeks and were divided into two groups. The experimental group was encouraged to take part in interactive activities while using AI apps, whereas the control group solely used AI-speaking apps without interaction. Data collection included questionnaires, semi-structured interviews, and pre- and post-tests. Results revealed that students generally had positive attitudes towards interactive activities when using AI apps to practice spoken English. Furthermore, the findings indicated that social network-based interaction significantly improved learners' speaking skills within the AI learning context. This research contributes to understanding the implementation and advancement of AI speaking apps with social networking features and expands previous investigations on network-based interaction into AI-assisted learning environments. Exploring interactions based on Chinese social network platforms like WeChat can potentially inform similar practices on other platforms such as Facebook or WhatsApp across diverse cultural settings for AI-assisted speaking practice.

Pataranutaporn et al. (2022) conducted a study to investigate the effects of learning from an AI-generated virtual instructor that resembles an individual's preferred or admired figure, thus exploring the potential of AI tutors to motivate learning. This research involved 134 participants who were divided into an experimental and a control group. The experimental group watched an online lecture presented by an AI-generated character resembling Elon Musk, known for innovation and entrepreneurship in technology. The control group viewed the same lecture delivered by an AI-generated character designed to match an unfamiliar person of similar age, race, and gender, utilizing a free online face generation tool. In the first part, participants watched the video lecture and responded to questions assessing motivation, emotions, and impressions of the instructor. Participants were informed about their instructor's AI nature before the lecture and answered questions regarding recognition, liking, and admiration. Both instructors presented identical content, differing only in appearance. After the lecture, participants answered additional survey questions on learning experience, emotional impact, and instructor qualities. The results evidenced that although higher levels of liking and admiration did not correlate with improved test scores, they notably enhanced students' motivation to learn, elicited more positive emotions, and positively influenced their perception of the AI-generated instructor's effectiveness in teaching.

Mohamed (2023) investigated the perceptions of ten EFL faculty members at Northern Border University regarding the effectiveness of ChatGPT in supporting English language learning. Data was gathered through in-depth interviews with faculty members. The interviews were conducted to gather rich, detailed data about the advantages and disadvantages of using ChatGPT, how it can enhance the learning experience for EFL students, how it can complement traditional teaching methods, and how it can support teachers in their day-to-day work. Results indicated varying opinions among faculty members regarding ChatGPT's efficacy. While some acknowledged its usefulness in providing rapid and accurate responses, others expressed concerns that ChatGPT could impede students' growth in critical thinking and research abilities, and possibly perpetuate biases or misinformation. Overall, participants perceived ChatGPT as a valuable tool for complementing traditional EFL teaching methods but recommended further research to evaluate its effectiveness. The study underlines ChatGPT's potential for enhancing EFL students' language proficiency but also highlights ethical considerations and the need for cautious

integration into language education programs. Understanding faculty perceptions can inform the development of effective approaches to AI integration in EFL education.

3. Method

3.1 Setting and Participants

The participants in this research consisted of 84 EFL pre-service teachers enrolled at a private university located in southern Ecuador. Their ages varied between 21 to 45 years old, and their English proficiency levels ranged from B1 to B2, according to the Common European Framework of Reference (CEFR). These participants were enrolled in three different distance courses as part of their major in Teaching English as a Foreign Language.

3.2 Instruments

The instruments used in this study, which were designed by the researchers, are described below:

- A diagnostic questionnaire to determine the students' previous learning experience related to the use of educational videos generated using AI. This instrument included 11 open and close-ended questions.

- A perception questionnaire was administered at the end of the intervention to gather data related to the learners' views regarding the effectiveness of using Fliki AI videos in their course. This questionnaire was designed using 11 closed-ended questions based on a 5-point Likert scale "Strongly agree, Agree, Neutral, Disagree, and Strongly disagree". This scale constitutes a tool to quantify subjective data into measurable formats (Joshi et al. 2015).

- An interview was conducted to get insights into learners' in-depth perceptions regarding the effectiveness of using Fliki AI videos in their EFL courses. This instrument included semi-structured open-ended questions.

3.3 Procedure

This study followed a mixed-method approach, which according to Creswell (2017) involves a combination of quantitative and qualitative elements. Over five months, this study unfolded in several stages. Initially, students underwent a comprehensive survey using a diagnostic questionnaire, revealing their prior exposure to AI in educational settings. The outcomes of this initial phase highlighted that most students believed that the use of interactive videos based on AI would be appealing to enhance their linguistic and pedagogical proficiencies in EFL. The intervention phase was characterized by the design and distribution of 18 Fliki AI videos, with six tailored to each course, and disseminated through weekly academic announcements on the institutional Canvas platform, alongside the Zoom tool, which served as the primary resources for lesson delivery in this distance learning program. The selection of content was meticulously curated, considering both its relevance and complexity for learners enrolled in each course. This approach ensured that students had access to engaging and contextually appropriate videos designed to optimize learning outcomes. Through the strategic integration of Fliki AI videos and the utilization of established digital platforms, such as Canvas and Zoom, the intervention fostered a dynamic and interactive educational environment conducive to students' success. Complementary activities were devised to foster comprehension of the video content, while students received prompt feedback to address any queries. To assess learners' perceptions, a questionnaire was administered to all participants, supplemented by interviews with ten students to validate their experiences with Fliki AI video integration. Before the implementation, all assessment instruments passed rigorous piloting and validation procedures, ensuring their reliability, as evidenced by a Cronbach's alpha coefficient of 0.74.

4. Results

Based on the findings of the diagnostic survey, it was revealed that 78.3% of the students reported having utilized interactive videos in prior university courses, whereas 21.7% had not engaged with them. Furthermore, among the participants, 41% expressed frequent incorporation of interactive videos into their learning process, while 36.1% acknowledged occasional usage. Interestingly, 13% of the respondents consistently integrated interactive videos into their previous learning experiences. A significant percentage of students (85.5%) acknowledged that interactive videos could encourage their participation and active learning, while 12% of them showed a neutral position regarding this aspect. The outcomes reflect that participants would like videos to include certain characteristics (Figure 1). In this regard, 89.2% of students indicated that interactive videos should be engaging and dynamic; in addition, participants (62.7%) considered that videos should include immediate assessment and feedback. Moreover, 45.8% of the learners believed that videos should signal or highlight important ideas or concepts. Finally, most of the participants (92.8%) strongly expressed their willingness for teachers to incorporate AI-based videos into their courses.
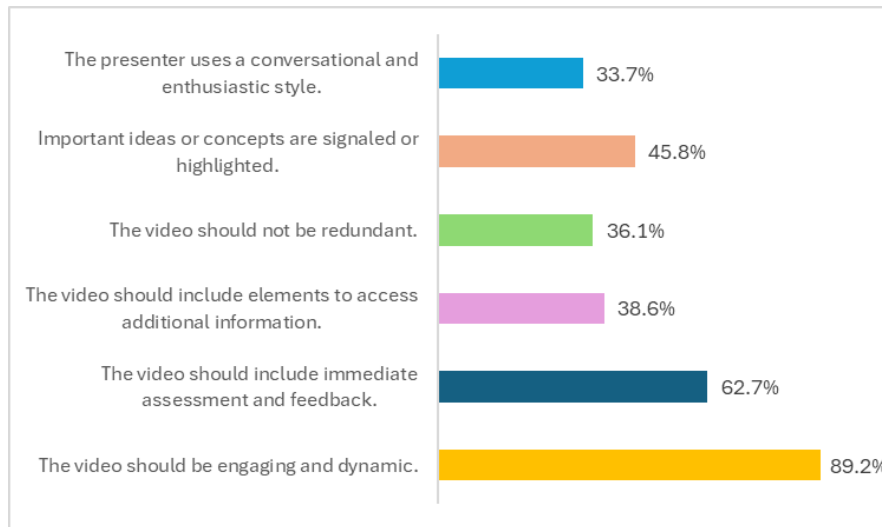
Figure 1. Students' AI video preferences

Table 1 presents the outcomes of the students' perception survey regarding the influence of Fliki AI videos on the courses attended by the participants.

Table 1. Students' perceptions of Fliki AI videos

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The Fliki AI videos employed in this course effectively engaged me.	69.05%	22.62%	7.14%	1.19%	0.00%
Utilizing Fliki AI videos improved my grasp of linguistic and pedagogical concepts.	66.67%	25.00%	7.14%	1.19%	0.00%
Fliki AI videos allowed me to adapt my learning progress based on my individual needs and pace.	61.90%	27.38%	9.52%	1.19%	0.00%
The use of Fliki AI videos positively impacted my overall learning experience.	65.48%	26.19%	7.14%	1.19%	0.00%
Supplementary activities following each Fliki AI video contributed significantly to my learning progress.	67.86%	23.81%	7.14%	1.19%	0.00%
The personalized features of Fliki AI videos supported my learning progress.	64.29%	27.38%	7.14%	1.19%	0.00%
Prompt feedback after watching Fliki AI videos helped me understand the contents presented effectively.	72.62%	19.05%	7.14%	1.19%	0.00%
The quality of the content designed through Fliki AI videos was appropriate.	71.43%	19.05%	8.33%	1.19%	0.00%
The length of the Fliki AI videos was suitable for my learning needs.	63.10%	25.00%	10.71%	1.19%	0.00%
The Fliki videos were designed to align with my preferred learning style.	65.48%	20.24%	10.71%	3.57%	0.00%
Integrating Fliki videos offered a flexible and adaptable learning environment.	71.43%	19.05%	8.33%	1.19%	0.00%

Figure 2 shows the results of students' perceptions of how useful the design of the videos based on AI was.

Figure 2. Results of the students' interview

5. Discussion

Regarding the utilization of Fliki AI videos, participants' responses reveal that 69.05% of them expressed high engagement, with an additional 22.62% in agreement with this perception. A minority (7.14%) maintained a neutral viewpoint, while only 1.19% disagreed. These findings imply that while a small portion of students did not perceive Fliki AI videos as engaging, the overwhelming majority experienced significant involvement during their course activities. This fact is in line with Chen et al. (2022) who explained that using AI and virtual reality technologies increases students' engagement in learning. Furthermore, insights gathered from student interviews substantiate these results, as they consistently reflect the high levels of engagement reported during exposure to Fliki AI videos. One student's opinion captures this view: *'Effective video design involves careful storyboard planning, engaging visuals, cinematography, editing, motion graphics, sound design, scripting, user experience, branding, storytelling, and the integration of technology, all contributing to a cohesive and immersive experience.'* This opinion reveals the impact of well-designed videos on student engagement.

Examining the students' opinions regarding the use of Fliki AI videos, a significant majority, comprising 66.67% strongly agreeing and 25.00% in agreement, acknowledge the improvement of their understanding of linguistic and pedagogical concepts through these videos. Conversely, a small group (7.14%) adopted a neutral stance on this matter, with an even smaller fraction (1.19%) expressing the belief that Fliki AI videos failed to reinforce their grasp of linguistic and pedagogical content. Interviews with the students further validate these findings, as they consistently highlight how the videos facilitated their comprehension of language and pedagogy. In this respect, AI has the potential to transform language teaching by complementing traditional approaches thus providing customized, captivating, and effective methods (Creely, 2024).

Based on participants' views regarding the impact of Fliki AI videos on their learning adaptation, a significant majority (61.90%) strongly agreed, and a notable portion (27.38%) agreed that these videos effectively facilitated adjustments in their learning pace and content absorption. On the contrary, a minority (9.52%) expressed neutrality, while only 1.19% disagreed with these findings. These results underscore the consensus among students that the videos effectively catered to their individual learning needs, allowing them to tailor their progression through the course material. Interviewees corroborated these attitudes, emphasizing that Fliki AI videos were intricately designed to dynamically align with their learning requirements and pace. These findings relate to the study by Lee et al. (2023) who found that including content powered by AI can suit learners' preferences by fostering their self-autonomous learning involvement.

The findings regarding the utilization of Fliki AI videos suggest a notably positive influence on students' overall learning experience. The majority, comprising 65.48% who strongly agreed and 26.19% who agreed, indicated a constructive impact of these videos. A marginal proportion (7.14%) remained neutral, while a mere 1.19% dissented from this viewpoint. Moreover, insights gathered from interviews highlighted the significance of Fliki AI videos in shaping students' comprehensive understanding of course contents. Participants affirmed that these AI-generated videos indeed played a pivotal role in developing their learning experience as stated by students in the interview: *'Videos are useful in an English class because they have a positive impact on multiple levels. This includes motivation and deeper learning'* In this regard, Mohamed (2023) states that the use of AI-powered language learning tools in teaching practices provides personalized and engaging academic experiences.

Regarding the supplementary activities accompanying each Fliki AI video, a significant majority of participants (67.86%) strongly agreed and (23.81%) affirmed that these activities substantially enhanced their learning progress. Furthermore, interviewees consistently recognized the effectiveness of these interactive activities, noting their role in reinforcing learning outcomes. In this respect, Ruiz-Rojas et al. (2023) highlight that Fliki AI videos facilitate the improvement and personalization of learning experiences. Likewise, most of the students (91.67%) acknowledged that the personalized features of Fliki AI videos supported their learning progress. During the interview,

participants confirmed these perceptions, affirming that Fliki AI videos not only captured their attention but also proved to be helpful, enjoyable, and dynamic. Certainly, AI shows promise for enhancing the video-based learning experience for both educators and learners (Seo et al., 2020).

Concerning feedback, 72.62% of the respondents strongly agreed and 19.05% agreed that receiving prompt feedback after watching Fliki AI videos helped them understand the contents presented while 7.14% remained neutral, and 1.19% disagreed with this idea. The findings obtained from the interviews corroborated the previously mentioned perceptions, as students expressed that feedback provided after analyzing Fliki AI videos was helpful and facilitated their comprehension of the contents. Regarding feedback, Jørgensen (2019) asserts that it constitutes a potential tool for enhancing students' learning and bridging the gap between their current level and the desired outcome. Additionally, the quality of content in the Fliki AI videos received high approval, with 90.48% of students finding it appropriate for their educational needs. Despite this strong endorsement, 8.33% of students were undecided about the content quality, and only 1.19% expressed disagreement. The interview responses aligned with the outcomes of the perceptions questionnaire, as the participants indicated that the content was of excellent quality, engaging, well-designed, and customized to meet their requirements. Certainly, the students' interviews indicate that *'The design of the videos was a very important aspect since the explanation of the topic and the feedback provided were clear'* In this context, Ruiz-Rojas et al. (2023, p.5) state, "University faculty can use Fliki AI to develop high-quality, personalized educational resources tailored to the needs of their students".

In evaluating the length of Fliki AI videos, findings reveal that 62.10% of students found them conducive to their learning needs, with 25% expressing full agreement and 10.71% remaining neutral. This indicates that a substantial portion of students perceived the length of the videos as appropriately structured for their educational objectives. However, it is worth noting that a notable minority holds a neutral perception regarding this fact. As for the students' interviews, the results shed light on the flexible nature of these videos. A significant majority of respondents emphasized that the brief duration of Fliki AI videos was a key attribute. They noted that teachers adeptly tailored the content to align with the unique learning outcomes of each course. This flexibility highlights the effectiveness of these videos in addressing a wide range of educational requirements, accommodating the diverse learning speeds and preferences among students. In this regard, Moybeka et al. (2023) argue that AI-driven materials afford learners the flexibility to use them according to their preferences, thereby aligning with their learning needs.

Regarding the design of Fliki AI videos, a significant majority of participants (65.48%) expressed full agreement that these resources had a pertinent design, with an additional 20.24% indicating agreement. However, 10.71% remained neutral on this aspect, suggesting a subset of participants requiring further exploration to understand those resources. Concerning the students' interview, the respondents highlighted the alignment of AI-based Fliki videos with their learning styles. Specifically, participants emphasized the visual appeal of the videos, noting that they effectively captured their attention and dynamically engaged them. This visual richness not only enhances comprehension but also caters to diverse learning preferences, accommodating those who may benefit from more interactive and stimulating content. The students' point of view in this regard shows that they found the design of the videos useful to enhance their language skills: *'The video design was helpful as it allowed me to develop my language skills'*. According to Chen and Zhai (2023), AI has the potential to provide customized learning opportunities, as it possesses the capability to assess the distinct requirements and competencies of each learner, adjust content accordingly, and deliver immediate feedback.

Finally, concerning the integration of Fliki AI videos in the EFL classroom, a significant majority of learners (71.43%) expressed full agreement that these resources facilitated a flexible and adaptable learning environment. Additionally, 19.05% of respondents agreed with this assertion, while 8.33% held a neutral standpoint, indicating potential areas for further exploration. Insights gathered from interviews with students underscored the positive impact of Fliki videos on the classroom environment. Participants emphasized that the well-designed nature of the videos made them easily adaptable to various learning environments, as stated in the interviews: *'I found it interesting how AI video tools can be very useful because of the way they adapt to my learning process'*. This adaptability not only enhances the efficacy of Fliki videos in traditional classroom settings but also extends their utility to diverse educational contexts, such as online learning platforms or blended learning environments. In this respect, it is important to mention that the implementation of AI resources offers personalization in which appropriate contents for each learner are determined using the students' level of comprehension and the preferred modes of learning (Murtaza et al., 2022).

6. Conclusions

The participants experienced high levels of engagement with Fliki AI videos during their course activities. This high engagement suggests that Fliki AI videos effectively capture students' attention and encourage active participation in the learning process. The interactive and visually engaging nature of the videos likely contributed to this positive response, as they provided an immersive learning experience that stimulated students' interest and motivation. Additionally, the accessibility and convenience of Fliki AI videos may have played a role in promoting student engagement, as they allowed students to access course content at their own pace and convenience, thereby increasing their overall involvement in the learning process.

Students perceived a significant improvement in their understanding of linguistic and pedagogical concepts through Fliki AI videos. This highlights the efficacy of Fliki AI videos in enhancing comprehension and knowledge retention among students. The videos served as valuable learning aids, providing clear explanations, examples, and visual representations of complex linguistic concepts. By presenting information in a visually engaging and accessible format, Fliki AI videos helped students grasp difficult concepts more effectively and

reinforced their understanding of key topics. Additionally, the interactive nature of the videos may have facilitated active learning, allowing students to engage with the material in a dynamic and immersive way, which further contributed to their learning outcomes.

Fliki AI videos effectively facilitate adjustments in students' learning pace and content assimilation, catering to their individual needs and preferences. This adaptability is a key strength of Fliki AI videos, as it allows for personalized learning experiences that accommodate diverse learning styles and abilities. By enabling students to progress through the course material at their own pace and providing additional support and resources as needed, Fliki AI videos foster a more inclusive and accessible learning environment. This flexibility likely contributes to students' overall satisfaction with the learning experience, as it allows them to engage with course content in a way that suits their individual learning needs.

The integration of supplementary activities accompanying Fliki AI videos substantially enhances students' learning progress, reinforcing learning outcomes and providing personalized and engaging learning experiences. These supplementary activities complement the content presented in the videos, providing students with opportunities to apply and consolidate their knowledge in a variety of contexts. By engaging students in interactive exercises, discussions, and reflective tasks, these activities reinforce key concepts and facilitate deeper learning. Moreover, the personalized and engaging nature of these activities motivates students to actively participate in the learning process, leading to improved academic outcomes and a more positive educational experience.

The effective utilization of Fliki AI videos, combined with supplementary activities, can significantly enhance the overall learning experience for students in EFL contexts. These findings suggest the importance of incorporating multimedia resources and interactive elements into instructional materials to promote student engagement, comprehension, and retention of key concepts. Therefore, educators and instructional designers should consider integrating Fliki AI videos and supplementary activities into their EFL courses to create a more dynamic and personalized learning environment. Additionally, further research could explore the specific design features and instructional strategies that maximize the effectiveness of Fliki AI videos and additional tasks in enhancing student learning outcomes and satisfaction in different education settings.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data sharing statement

No additional data are available.

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