Riwayat

Original Article

Pedagogical Use of Interactive Flat Panels in Teaching English: A Classroom-Based Study at Senior High School

Syafaruddin Marpaung[1]✉, Rahmah Fithriani[2], Saiful Anwar Matondang[3], Amirul Mukminin[4]
Universitas Islam Sumatera Utara (UISU), Medan, Indonesia
Correspondence Author: marpaungsyafaruddin37@gmail.com,
rahmahfithriani@uinsu.ac.id, saiful.matondang@fkip.uisu.ac.id,
amirul.mukminin@unja.ac.id

Abstract:

The use of digital technology in English language learning is becoming increasingly important to improve student engagement and learning quality. However, the use of Interactive Flat Panels (IFPs) in English classes has not always been accompanied by optimal pedagogical use. This study aims to analyze the pedagogical use of Interactive Flat Panels in English language learning at the senior high school level, identify their pedagogical benefits, and reveal the obstacles faced by teachers in their implementation. This study uses a qualitative approach with a classroom-based study design. Data were collected through learning observations, interviews with English teachers, and documentation of learning activities. The results show that IFPs are used to display video materials, presentations, listening exercises, and digital-based interactive games that increase student participation and engagement. However, limited technical understanding and the need for repeated training are major challenges for teachers. This study concludes that effective use of IFPs requires teachers' pedagogical readiness and support for continuous professional development.

Keywords: Interactive Flat Panel, English Language Teaching, Classroom-Based Study, Learning Media, Teacher Practice

Introduction

The development of digital technology has brought significant changes to English language teaching practices, particularly in the context of English Language Teaching (ELT). The integration of technology in learning is no longer seen as a supplement, but rather as an integral part of the learning process that is relevant to the demands of the 21st century (Yılmaz, 2021; Ramaila and Molwele, 2022; Kalyani, 2024). English language learning today is required to develop students' communication, collaboration, creativity, and critical thinking skills through a contextual and meaningful approach. Therefore, the use of interactive learning media has become an important strategy to bridge pedagogical

needs with the characteristics of the digital learner generation (Utami and Koesmijati, 2020; Arina et al., 2021). Digital media allows teachers to present language material in a more varied and contextual way, so that learning does not only focus on mastering language structures, but also on the communicative use of language in real situations.

In line with these demands, various studies show that the use of digital media in English language learning contributes positively to student engagement and interaction in the classroom. Digital media can deliver multimodal learning input by integrating visual, auditory, and textual elements, thereby enriching students' learning experiences (Giannakos, 2020; Dahlström, 2022; Zhang, 2024b; Hoque, 2025). This multimodal approach facilitates learners' comprehension of language materials, as information is processed through multiple sensory channels. Furthermore, digital media promotes two-way interaction between teachers and students as well as among students, fostering a more participatory learning environment (Chen et al., 2020; Pimdee et al., 2023; Zdravkovic & Sciences, 2024). Through enhanced engagement and interaction, students are positioned not merely as passive recipients of information but as active participants in the English language learning process.

One form of digital media that is increasingly being used in English language learning is the Interactive Flat Panel (IFP). In a pedagogical context, IFPs function as learning media that integrate various digital learning resources, such as videos, audio, text, and interactive applications, into one easily accessible device (Chen et al., 2020; Pimdee et al., 2023; Zdravkovic and Sciences, 2024). The existence of IFP allows teachers to present English material in a more dynamic and interactive way, as well as supporting various communication-based learning activities. Therefore, IFP should be understood not only as a technological device, but also as a learning medium that has pedagogical potential to improve the quality of English learning (Thirumalai and Kumar, 2020; Meutia, Fitri and Afrida, 2024; Mulyadi et al., 2024; Jayadi, 2025; Mega Setya Handayani, 2025). The effective use of Interactive Flat Panels (IFPs) depends on how teachers integrate them into instructional strategies that align with English Language Teaching (ELT) objectives.

Along with the increasing availability of digital devices in schools, including Interactive Flat Panels (IFPs) and smart boards, English learning practices face challenges in terms of pedagogical utilization. Although these devices are available and used in many classrooms, their use has not always been optimally integrated into English Language Teaching strategies (Ferlazzo, L., & Sypnieski, 2022; Gao, 2022; Lee et al., 2022; Manegre and Sabiri, 2022; Nai, 2022; Buehl, 2023; Mehrpouyan, 2023). In practice, there is variation in the use of IFPs in the classroom, ranging from basic use as a presentation tool to interactive use that actively involves students. This situation indicates a gap between the availability of technology and its pedagogical application, where not all teachers utilize the potential of IFPs to support communicative and participatory English language learning (Kasa, A and Naathi, 2024; Mammen and Mulla, 2025; Mulla and Mammen, 2025).

Various studies in the field of ELT report that the use of digital media and interactive technology can increase student engagement, motivation, and interaction in English language learning. Recent studies show that the use of digital-based media, including interactive whiteboards and learning applications, can support multimodal learning and provide faster feedback to students (Handayani, 1805; Hasan et al., 2020; Sari, 2020; Yu et al., 2022). However, other studies also reveal that the effectiveness of learning technology is greatly influenced by teachers' pedagogical readiness and their

understanding of technology integration in language learning (Taghizadeh and Hasani Yourdshahi, 2020; Souza et al., 2021; Akram et al., 2022; Belda-Medina and Calvo-Ferrer, 2022; Park and Son, 2022; Raygan and Moradkhani, 2022). These findings confirm that the existence of technology alone does not guarantee an improvement in the quality of learning without the support of appropriate pedagogical practices.

In the local context, SMA Negeri 2 Kota Tanjungbalai is one of the schools that has utilized Interactive Flat Panels in English language learning. This school has five English teachers who have used IFPs with varying levels of utilization. Some teachers use IFPs to display video materials, presentations, and digital books, while others have integrated interactive games and application-based listening exercises. These variations in practice reflect differences in teachers' understanding and experience in utilizing IFP as a medium for English language learning, while also highlighting the pedagogical challenges faced in its implementation in the classroom.

Based on these conditions, this study aims to analyze the pedagogical use of Interactive Flat Panels in English language learning at the high school level. Specifically, this study focuses on how IFPs are used in English language learning practices, the pedagogical benefits gained from their use, and the obstacles teachers face in integrating IFPs into learning activities. This study is expected to provide an empirical description of the practice of utilizing IFP in the context of ELT and serve as a basis for developing more effective learning strategies.

Method
Research Design and Approach
This study employed a qualitative approach with a classroom-based study design. This approach was selected to obtain an in-depth understanding of the pedagogical use of Interactive Flat Panels (IFPs) in English language learning within authentic classroom contexts. Classroom-based studies enable researchers to directly observe instructional practices, teacher–student interactions, and variations in the use of learning media as they naturally occur in real learning situations. Through a qualitative perspective, this study emphasizes processes, experiences, and meanings related to the use of IFPs in English Language Teaching (ELT), rather than focusing on quantitative measurements or statistical hypothesis testing.

Research Participants
The participants of this study consisted of five English teachers at SMA Negeri 2 Kota Tanjungbalai. These teachers were purposively selected because they had experience using Interactive Flat Panels in English language instruction with varying levels of utilization. Students were not included as primary respondents; however, they functioned as part of the learning context observed during the research process. The variation in teachers' use of IFPs, ranging from basic presentation to more interactive applications, served as the basis for participant selection in order to obtain a comprehensive picture of the pedagogical use of IFPs in English language classrooms.

Research Instruments
The research instruments included observation sheets, interview guidelines, and documentation. Observation sheets were used to record English learning activities involving the use of IFPs, including the types of instructional materials displayed, patterns of classroom interaction, and levels of student involvement (Lofland et al., 2022; Timmermans & Tavory, 2024; Tisdell et al., 2025). Semi-structured interview guidelines were employed to explore

teachers' perceptions regarding the benefits, challenges, and experiences of using IFPs in English language teaching. Documentation was used to support the observation and interview data, consisting of digital teaching materials, displays of learning activities, and other relevant records related to the research.

Research Procedures

The research process began with classroom observations of English language learning activities that utilized Interactive Flat Panels. These observations aimed to capture an authentic portrayal of how IFPs were used during instructional stages, including material presentation, practice activities, and interactive learning tasks. Following the observations, interviews were conducted with the participating English teachers to confirm and deepen the observational findings, particularly concerning their reasons for selecting certain instructional strategies, perceptions of the benefits of IFPs, and challenges encountered during their use. In addition, supporting documents such as presentation slides, digital teaching materials, and recordings of learning activities were collected as supplementary data (Lofland et al., 2022; Timmermans & Tavory, 2024; Tisdell et al., 2025).

Data Analysis Techniques

The data obtained from observations, interviews, and documentation were analyzed using thematic descriptive analysis. Initially, the data were classified according to the research focus, namely forms of IFP utilization, pedagogical benefits, and obstacles in implementation. Subsequently, the data were examined to identify patterns, similarities, and differences in the use of IFPs across English language classes (Timmermans & Tavory, 2024; Tisdell et al., 2025). The findings were then interpreted descriptively to address the research questions and to provide a comprehensive overview of the pedagogical use of Interactive Flat Panels in English language learning.

Results and Discussion

Pedagogical Use of Interactive Flat Panel in English Language Teaching (RQ1)

The use of Interactive Flat Panels (IFPs) in English language learning at SMA Negeri 2 Kota Tanjungbalai showed variations in pedagogical practices among teachers. Based on classroom observations, IFPs were used as the main medium for displaying digital learning materials, such as learning videos from YouTube, PowerPoint presentations, and PDF documents containing English language materials and textbooks. This use was generally carried out during the presentation of material and explanation of concepts, especially for topics such as listening, reading, and vocabulary. Teachers utilized the visual and audio displays of IFPs to help students understand the context of language use in a more concrete and contextual manner (Flores and Obod, 2023; Ahmed, 2024; Lee, 2024).

In addition to these basic uses, some teachers have integrated IFPs into more interactive learning activities. IFPs are used to run learning applications such as Natural Readers for listening exercises, as well as various online-based educational games, such as Quizizz, Wordwall, and Educaplay. In these activities, students are not just spectators, but are also directly involved by touching the IFP screen to select answers or complete language tasks. Observations show that these interactive activities are usually applied at the practice and reinforcement stages, particularly to improve vocabulary, sentence structure, and listening skills (Yang, 2023; Tabassum, 2024; Qasserras, 2025; Sadiqzade, 2025).

However, differences in the level of IFP utilization were found among English teachers. Of the five teachers observed, only two teachers consistently utilized the interactive features of the IFP and fully integrated digital learning applications. The other three teachers tended to use the IFP as a conventional presentation tool to display videos and static material. The interview results revealed that this difference was influenced by the teachers' level of technical understanding and confidence in using IFP features. One teacher stated, "Saya lebih nyaman menayangkan PPT dan video karena itu yang paling mudah. Untuk gim atau aplikasi lain, saya masih perlu belajar lagi agar tidak salah saat mengajar." These findings show that the pedagogical utilization of IFP is highly dependent on the readiness and experience of teachers (Moon, 2023; Kulal et al., 2024; Dewantara et al., 2025; Ivan et al., 2025).

Pedagogical Benefits of Interactive Flat Panels in English Language Teaching (RQ2)

The results of the study show that the use of Interactive Flat Panels provides various pedagogical benefits in English language learning. One of the main benefits identified is increased student engagement in the learning process. Classroom observations show that students are more focused and enthusiastic when material is presented through attractive visual and audio displays. IFP-based learning activities, especially those involving videos, animations, and interactive games, are able to attract students' attention and reduce passivity during learning (Dewantara et al., 2025; Jayadi, 2025; Mega Setya Handayani, 2025).

In addition to increasing engagement, IFP also contributes to increased interaction in the classroom. Interaction occurs not only between teachers and students, but also among students through discussions and collaborative activities (Dewantara et al., 2025; Jayadi, 2025). When using interactive games such as Quizizz and Wordwall, students actively discuss and help each other in answering questions. One teacher said in an interview. "Saat menggunakan gim di IFP, siswa lebih berani mencoba menjawab. Mereka juga saling memberi masukan, jadi kelas terasa lebih hidup." This finding is in line with the concept of communicative learning in ELT, which emphasizes interaction as an important part of the language acquisition process.

Another benefit found is IFP's support for multimodal learning. IFP allows English material to be presented through a combination of text, images, audio, and video at the same time (Mahdi, 2022; Montero Perez, 2022; Zhang, 2024a). This multimodal approach helps students with diverse learning styles to understand the material better. The use of the Natural Readers application, for example, provides examples of authentic word and sentence pronunciation, thereby helping students improve their listening and pronunciation skills. These findings reinforce previous research results which state that multimodal media-based learning can improve students' language comprehension and learning motivation.

Challenges in Using Interactive Flat Panels in English Language Teaching (RQ3)

Despite its various benefits, this study also found a number of obstacles in the use of Interactive Flat Panels. The main obstacle faced by teachers is a limited technical understanding of how to optimally operate and integrate IFP features. Some teachers revealed that they needed time and repeated practice to be able to use interactive learning applications smoothly. One teacher stated, "Sebenarnya IFP sangat membantu, tetapi

kalau jarang dipakai, saya bisa lupa langkah-langkahnya. Jadi perlu sering latihan."

Another obstacle found was the tendency of teachers to rely on simple IFP features, such as video playback and presentations. This resulted in the pedagogical potential of IFP not being fully utilized. This dependence on basic usage is also influenced by limited preparation time and teachers' concerns about technical disruptions during the learning process. This condition shows that the availability of technology does not automatically translate into teachers' pedagogical readiness to integrate it into English language learning (Meirovitz, Russak and Zur, 2022; Park and Son, 2022; El and Kau, 2024).

The pedagogical implications of these findings show the importance of continuous professional development support for English teachers. Training that focuses on the pedagogical integration of technology, not just technical aspects, is necessary for teachers to be able to utilize IFP more effectively (Kasa, A and Naathi, 2024; Dewantara et al., 2025; Jayadi, 2025). With such support, it is hoped that IFP will not only function as a presentation tool, but also as an interactive learning medium that supports the achievement of ELT objectives.

Tabel 1. Variations in the Utilization of Interactive Flat Panels by English Teachers

Aspects of IFP Utilization	Teachers 1–2	Teachers 3–5
Video / YouTube	✓	✓
PPT / PDF	✓	✓
Listening (Natural Readers)	✓	✗
Interactive games (Quizizz, Wordwall, Educaplay)	✓	✗
Direct student interaction on screen	✓	✗

Conclusion

This study concludes that Interactive Flat Panels (IFPs) have been implemented in English language learning through varied pedagogical practices among teachers. IFPs are utilized to present digital instructional materials, listening activities, and interactive tasks that contribute to increased student engagement and classroom interaction. Nevertheless, the pedagogical potential of IFPs has not been fully optimized, primarily due to differences in teachers' levels of understanding and readiness to integrate the interactive features of the technology.

The pedagogical implications of these findings underscore the importance of continuous professional development for English teachers, particularly in relation to the pedagogical integration of educational technology. With appropriate training and institutional support, Interactive Flat Panels can be more effectively employed as interactive learning media to support the achievement of English Language Teaching (ELT) objectives.

Suggestion

Based on the scope and findings of this study, several recommendations can be proposed. Since this study focuses on teachers' experiences in utilizing Interactive Flat Panels (IFPs) as learning media, future research is encouraged to involve students as research participants in order to obtain a more comprehensive understanding of the

impact of IFP use on students' learning engagement and language development. In addition, further studies may explore the effectiveness of specific interactive features of IFPs in supporting English language skills.

From a practical perspective, it is recommended that schools and educational stakeholders provide continuous professional development programs for English teachers that emphasize not only technical skills but also pedagogical strategies for integrating IFPs into classroom instruction. Such initiatives are expected to support more effective and optimal use of Interactive Flat Panels in achieving English Language Teaching objectives.

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