

Interactive Flat Panel as Transforming the Teacher's Role from Explainer to Orchestrator

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Proceedings of the Kalijaga International Conference on Education 2026

Abstract. The rapid integration of Interactive Flat Panels (IFPs) into classroom settings has often been newly discoursed in terms of technological affordances and instructional efficiency in schools. However, less attention has been paid to their pedagogical implications, particularly in relation to the evolving role of teachers. This article argues that IFPs fundamentally reposition teachers from primary knowledge explainers to learning orchestrators who design, manage, and mediate classroom interactions interactively. Drawing on sociocultural learning theory and classroom discourse studies, the paper studies how IFP-enabled features—such as real-time annotation, multimodal content integration, and multi-user interaction—reshape patterns of participation and authority in the classroom. Rather than transmitting information, teachers utilize IFPs to orchestrate student engagement, scaffold collaborative meaning-making, and facilitate multi-dialogic learning. Through narrative literature review and thematic synthesis, this study illustrates how the use of IFPs encourages collective control over learning activities while maintaining pedagogical guidance. The findings suggest that the pedagogical value of IFPs lies not in their technological sophistication, but in their capacity to support teacher agency as interaction designers. This reconceptualization positions IFPs as catalysts for pedagogical transformation, emphasizing interaction, collaboration, and learner-centered instruction over traditional teacher-centered explanations.

Keywords: *Classroom Orchestration; Communicative Language Teaching; Interactive Flat Panel (IFP); Narrative Literature Review; Teacher's Role.*

Abbreviation: IFP (Interactive Flat Panel); IWB Interactive White Board

INTRODUCTION

In recent years, digital technology has transformed the way teaching and learning takes place in classrooms. Teachers are increasingly expected to use digital resources while providing students greater opportunity to participate and interact in learning activities [8]. One device that is becoming more prevalent in classrooms is the Interactive Flat Panel (IFP). It blends touch interaction, multimedia information and real-time annotation into one classroom display [9], [10]. These characteristics allow teachers and students to engage with learning materials in more flexible and engaging ways. But more crucially, IFPs enable teachers to do more than just convey knowledge; they create new possibilities for students to interact, share ideas, and work with learning content. As IFP use continues to grow, the important question is not only what the technology can offer, but also how teachers use it to shape classroom learning.

The increasing use of Interactive Flat Panels carries significant implications for classroom instruction as it can influence how teachers structure learning experiences and how students engage in classroom activities. When linked to meaningful learning activities, interactive displays can produce higher opportunities for involvement, social engagement and cooperation [11]. However, technological use does not necessarily translate to greater active learning. The research indicates that teachers may be using new technology in a manner that is consistent with their present teaching techniques, rather than making the most of their interactive potential [12]. If this occurs, IFPs may simply become another means to provide the same teacher-centered training. This emphasizes the need to explore the use of IFPs by teachers to generate chances for interaction, cooperation and student participation beyond the features of IFPs. Grasping this link may assist illuminate how IFPs might be used to bring about substantial changes in classroom teaching.

Recent research has explored interactive technology in education in terms of learning outcomes, student engagement, teacher practices and classroom interaction [13], [14]. The findings usually suggest that these technologies can improve engagement, cooperation and learning if they are integrated into relevant classroom activities [13], [15]. Other studies emphasize the role of teachers' knowledge, confidence and pedagogical decisions in the effective use of technology [16]. Research on classroom orchestration further suggests that teachers play a key role in regulating activities, engagement and interaction in technology-

supported classrooms [14]. However, these areas have often been studied separately. Little attention has been paid to the relationship between IFP affordances, teacher agency, and classroom orchestration. This gap is particularly important in understanding how IFPs may support the transformation from teachers as explainers to orchestrators of classroom interaction.

Therefore, this study aims to examine how Interactive Flat Panels (IFPs) can support the transformation of teachers' roles from explainers to learning orchestrators in technology-supported classrooms. It also explores how teacher agency and classroom orchestration can shape the use of IFPs to support classroom interaction and collaborative learning.

METHODS

Interactive Flat Panels as Interactive Learning Tools

Interactive flat panels (IFPs) are huge digital displays that incorporate touch screen technology, enabling users to engage directly with digital content. In the classroom, IFPs can act as a display screen, digital whiteboard, multimedia device and digital learning tools all in one device [2]. Unlike conventional projectors, IFPs allow teachers and students to write, annotate, move objects, and interact directly with materials on the screen. This makes IFPs more than a device for showing information and offers a more participatory way to work with learning content.

The interactive features of IFPs create new possibilities for classroom teaching and learning. Teachers can integrate text, photos, videos, websites and other digital assets, while students can actively reply to stuff on the screen. These possibilities can ease the participation of students and make classroom activities more flexible. However, the existence of an IFP does not necessarily lead to a more participatory learning. Its pedagogical relevance depends on the way teachers select and employ its features in relation to learning goals and classroom activities [17], [18], [19]

Previous studies have reported several benefits of interactive display technology in language learning. K hl and Wohninsland found that interactive whiteboard use supported students' vocabulary learning and motivation [17]. Luo et al. also reported that pre-service ESL teachers viewed interactive whiteboards as useful for classroom interaction, engagement, teaching materials, and classroom management [20]. In collaborative writing, interactive whiteboard technology was found to support students' writing performance, metacognitive activities, and co-regulation [1]. These findings suggest that interactive displays can support not only content presentation but also student engagement, interaction, and collaboration.

Interactive Flat Panels (IFPs) allow teachers and students to interact directly with digital learning materials utilizing touch, multimedia and annotation. Interactive displays can assist language acquisition when teachers use them to foster engagement and active involvement building on previous interactive whiteboard studies [2]. Recent studies also found positive impacts on student motivation, vocabulary learning and engagement [17], [18], [19]. IFP-supported activities can also encourage collaboration and improve learning performance when technology is integrated into the learning task [1]. IFP use has also been reported to increase students' learning motivation in Indonesia [20]. Together, these results demonstrate that IFPs are more than just means for displaying information. They are valuable in the same way that teachers use them to establish chances for interaction, participation, and collaboration.

Taken together, these studies suggest that the value of IFPs lies not simply in their interactive features, but in how those features are used within the learning process. Teachers play an important role in deciding when, why, and how the technology is used to support classroom activities. Schmid [2] highlights the importance of teachers' competencies in using interactive whiteboards to support communicative language teaching. This suggests that understanding IFP use also requires attention to the teacher's role in organizing interaction and learning activities. Therefore, IFPs can be viewed not only as classroom technologies but also as tools that may support a shift in how teachers organize and facilitate learning.

From Teacher as explainer to Learning Orchestrator

Teacher orchestration has emerged as a key notion for understanding teaching in technology-supported classrooms. Drijvers et al. [5] define instrumental orchestration as the deliberate organizing and utilization of available tools and learning resources by the teacher to guide students' learning. Leontjev and deBoer (2025) also see the teacher as a creator who orchestrates classroom activities to promote learner growth. These perspectives suggest that the teacher's role is not limited to explaining content. Instead, teachers arrange resources, activities and interactions such that conditions for learning are created. Orchestration in technology-supported classrooms then concerns judgments regarding how and when available technologies are employed to support learning goals. [47]

The development of educational technology has also encouraged a shift in traditional teacher roles. Wu and Zhan argue that technology can influence teaching methods, classroom organization, and the role of teachers [21], [22]. Rather than simply presenting information, teachers increasingly need to organize learning activities and manage interaction among students and learning resources. This change does not mean that teachers become less important. Instead, teachers take a more active role in designing and guiding the learning process.

Several studies have addressed teacher orchestration in technology-supported learning. Drijvers et al. [5] revealed that teachers arrange technology and classroom activities in different ways according to their teaching techniques. Leite et al. [23] reported instructor orchestration was connected to the usage of students' learning resources in a virtual learning environment. Recently, Feng et al. [14] analyzed studies on classroom orchestration systems and found three key purposes, i.e. supporting instructor awareness, classroom instruction, and student coordination.

Taken together, these studies show that teacher orchestration is more than classroom management. It involves organizing activities, guiding students, and responding to their learning needs. This suggests that teachers remain important in technology-supported classrooms because they decide how technology is used to support learning.

Teacher Agency in Technology-Supported Classrooms

Teacher agency refers to teachers' capacity to make decisions and take action within their teaching context. From an ecological perspective, agency is shaped not only by teachers' abilities but also by their experiences, relationships, and working conditions [24]. Cong-Lem's systematic review also shows that teacher agency is influenced by both teacher capacity and contextual factors [25]. This suggests that teachers actively shape their teaching practices based on the opportunities and condition around them.

Teacher agency in technology-supported classrooms is represented in teachers' preference for technology use for educational purposes. Previous studies show that teachers' agency is shaped by their beliefs, identities, students, and teaching conditions [26]. In other research, teachers actively discover and adjust technological affordances to meet classroom demands [27]. Lee and Jeon also discovered that teachers' usage of ICT affordances was affected by their educational views, experience, identity and professional growth. More recently, studies of EFL teachers within an era of digital transformation have drawn attention to the significance of experience, professional identity and contextual conditions in shaping teacher agency. Taken together, the research demonstrate that technology is not determining what teachers teach. Teachers actively select how the opportunities technology offers can help their teaching goals.

Sociocultural Learning and the Mediating Role of Technology

Sociocultural theory views learning as a socially influenced process that develops via contact with others and the environment. Vygotsky emphasized the importance of social contact and cultural tools in human growth [28]. However, the Zone of Proximal Development emphasizes the need of guidance and collaboration in fostering the development of learners [28]. Ohta has shown in language learning how learners can support each other via collaborative interaction and shared meaning-making [29]. Poehner and Lantolf [4] more recently emphasized the continuing relevance of Sociocultural Theory in understanding and advancing second language education and practice. Together, these views suggest that learning is not only an individual process but also one that develops through interaction, mediation, cooperation, and guided engagement.

The sociocultural paradigm has also been extended to language learning facilitated by digital tools. Huong and Hung [31], [32] mentioned that digital resources are mediational instruments in English learning and can enhance cognitive, social and linguistic growth. Studies on computer-mediated EFL learning have also emphasized the potential of digital settings to foster collaborative conversation and engagement among learners [30]. Lantolf and Xi [33] further highlighted how the Sociocultural Theory may be applied to understand the Digital Language Learning, especially using the notions of mediation and Zone of Proximal Development. Poehner and Lu [3] also demonstrate the continued use of sociocultural concepts in contemporary second language pedagogy. Taken together, this research suggest that digital technology can promote language acquisition through the creation of chances for interaction, mediation and cooperation. However, its educational value depends on how teachers and learners use these tools during the learning process.

Thus, technology can aid classroom engagement when teachers use it to organize and mediate learning activities. Hennessy et al. observed that teachers developed proactive and responsive ways to manage students' engagement with ICT in technology-integrated instructional exchanges [34]. This research demonstrates the significance of teachers in determining how technology is incorporated into classroom engagement.

Taken together, these findings suggest that technology can assist learning when used to mediate contact and collaboration. They stress the significance of teachers and students' involvement in imparting educational relevance to the technology instruments. From this perspective, an IFP can function as a shared classroom tool that supports teacher guidance, student participation, and collaborative meaning-making.

Dialogic and Collaborative Learning

Dialogic education sees classroom learning as a process in which teachers and students discuss ideas, respond to different viewpoints and create understanding together. Alexander [36] says that dialogic teaching provides pupils with opportunity to express, challenge and develop ideas through discourse in the classroom. Similarly, Reznitskaya [37] highlights the function of dialogue in supporting students' thinking about other ideas and constructing meaning through interaction. More recent study also acknowledges sharing, articulating and elaborating on ideas as crucial elements of dialogic education [35]. Collectively, these findings indicate that dialogic education shifts classroom interaction away from one-way explanation and offers students a more active role in building meaning.

Dialogic teaching can offer possibilities for students to participate, express their thoughts and respond to feedbacks in EFL courses. Sybing [40] observed dialogic chances developed when professors encouraged pupils to offer their own knowledge and viewpoints in classroom interaction. Moreover, studies suggest that dialogic education requires teachers to adapt their interactional practices to the demands and environment of their classrooms [38]. Recent studies further emphasize the need of teacher autonomy and competency for the implementation of dialogue-based education [39]. Taken together, these findings suggest that dialogic learning does not involve decreasing the role of the teacher. In contrast, instructors remain vital in establishing, guiding and sustaining meaningful classroom conversation.

However technology could be used to provide extra places for dialogic learning, as a way of providing additional opportunities for conversation, reflection and collaborative meaning-making. For example, Wegerif proposes that instructional technology can create space for learners to engage in discourse and develop ideas together. Similarly, research on electronic tools in language acquisition indicates that technology can be a mediational resource when teachers assist students in utilizing its affordances for learning [31], [32]. Research on dialogic education also demonstrates that productive classroom discourse requires students to share ideas, explain their thinking, and build on the contributions of others [35]. All of these studies demonstrate that technology is pedagogically meaningful when it facilitates engagement rather than merely conveying knowledge. In this way an IFP can be a shared place in the classroom where professors scaffold interaction and students participate, respond, and co-construct meaning. [48]

Conceptualizing IFP-Orchestrated Teaching

As teachers relate the affordances of interactive technology to instructional goals and classroom demands, the pedagogic meaning of the technology emerges. Research on interactive whiteboards has demonstrated that the use of technology can progress from a mere replacement of the traditional board to a more integrated role in the classroom activity. Beauchamp and Kennewell [41] discovered that at a more advanced stage the IWB might serve as a hub for classroom activity in which both teachers and students utilized its affordances to facilitate classroom orchestration. Similarly, Tosuntaş et al. [42] developed a model linking teachers' technological pedagogical content knowledge (TPACK), acceptance and use of IWB, IWB transition, and teacher performance. Their findings showed positive relationships among these factors, suggesting that teachers' knowledge and use of technology are important in shaping technology-supported teaching. The implications of these findings are that the educational usefulness of interactive technology is not only defined by its technical aspects but also by teachers' knowledge, decisions and practices of integrating technology into instruction.

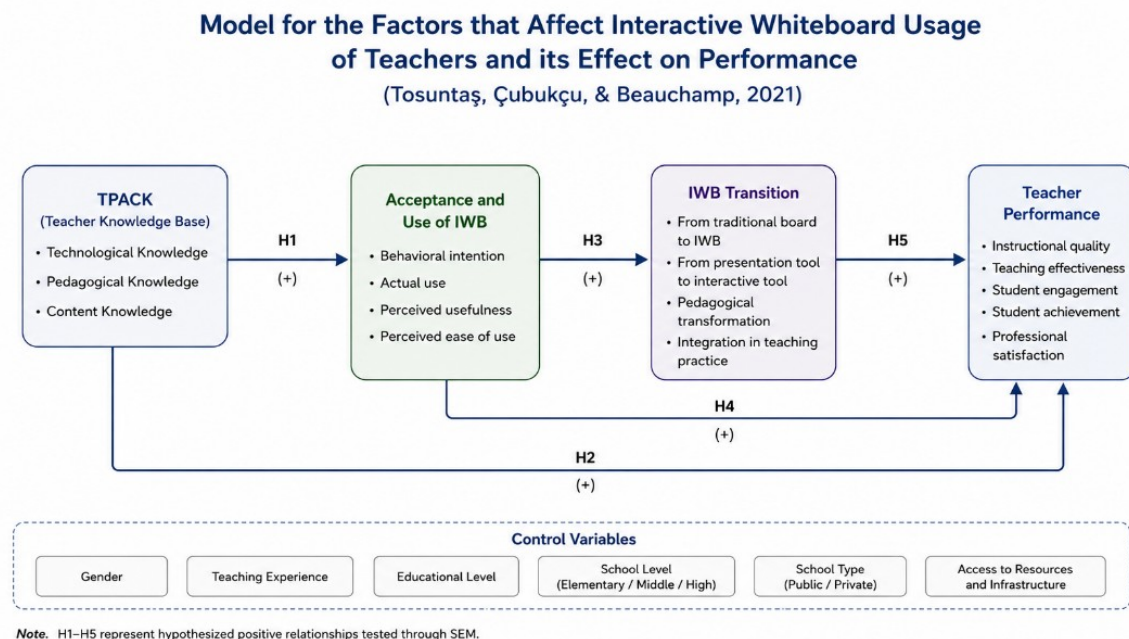


Figure 1. Model for the factors that affect IWB usage of teachers and Its Effect on Performance

Tosuntaş et al. [42] constructed a model describing the association between teachers' TPack, adoption and use of interactive whiteboards (IWB), IWB transition and teacher performance. The model indicates that TPack affects teachers' adoption and use of IWB and both TPack and IWB use are connected to teacher performance. The usage of IWB also helps the shift toward more integrated use of technology, which is connected with teacher performance. The model implies that effective technology integration is not just dependent on access to technology but also on teachers' knowledge of and use of technology in teaching. However, the model is mostly focused on technology utilisation and teacher performance. It does not explain in fully how teachers coordinate technology in classroom interaction. This offers a framework for the present study to expand the topic toward IFP-supported learning orchestration [42].

While Tosuntaş et al. [42] explain how TPack, IWB use, and IWB transition are related to teacher performance, their model does not specifically explain how teachers orchestrate technology during classroom interaction. Therefore, the present study extends this perspective by focusing on the pedagogical processes through which teachers select, coordinate, monitor, and adapt IFP affordances during learning.

From this perspective, pedagogical orchestration can be seen as a process of teaching helped by technology. Prieto et al. [6] defined orchestration as the synchronization of multiple components of technology-enhanced learning and pointed out the challenge of orchestrating learning activities in practical classroom settings. More recently, Song [43] reviewed 43 research in which two major approaches to technology-supported orchestration were identified: the use of technology in instructional design and the construction of technical systems to assist orchestration. Amarasinghe et al. [44] also found that teachers' orchestration consists of multiple acts, including managing time, activity transitions, and student participation. Their results also revealed the effect of the technical support on the quantity and type of orchestration acts conducted by teachers. Taken together, these studies locate the teacher as an active coordinators, who constantly hooks together technology, learning activities and classroom engagement, rather than as an operator of technological equipment.

Taken together, these perspectives support a conceptualization of IFP-orchestrated teaching as a teacher-led process of purposefully selecting, coordinating, monitoring, and adapting IFP affordances to support classroom learning. This concept builds on prior research on IWB use by shifting the focus away from technology adoption, technical abilities or performance outcomes toward the pedagogical processes through which teachers enact technology in classroom interaction. It links teacher agency, technological affordances, orchestration and dialogic learning. However, past research have mostly considered these dimensions in isolation. Therefore, this study combines these to conceptualize IFP-orchestrated teaching as a process in which teachers utilize IFP affordances to design learning activities, stimulate participation, monitor classroom interaction and change instruction in response to students' needs. This conceptualization forms the basis of the IFP-Supported Learning Orchestration Model described in the Results and Discussion section.

Procedure

Literature Identification and Selection

Literature was selected according to its relation to the main concepts of this study: teacher agency, interactive flat panel (IFP) affordances, pedagogical orchestration, and classroom interaction. The references were peer reviewed studies, theoretical articles and pertinent pdf materials provided for this investigation. Particular focus was paid to studies dealing with interactive whiteboards or interactive displays, teacher agency, technology-supported instruction and pedagogical orchestration.

Literature Analysis and Thematic Organization

The selected literature was studied and analyzed in an effort to discover the main ideas, theoretical viewpoints and findings relating to the research area. Then, significant material was classified into four themes: teacher agency, affordances of IFP, pedagogical orchestration, and classroom interaction. The results of many investigations were examined to find common patterns and connections between the themes. Research on orchestration has focused on teachers' work of coordinating, monitoring, and modifying learning activities in relation to classroom settings [44], [6], [43].

Narrative Synthesis and Conceptual Development

The selected themes were narratively synthesized to demonstrate the relationships between teacher agency, affordances of IFP and pedagogical orchestration. The synthesis focused on teacher's intentional selection, coordination, monitoring and adaptation of interactive technology in instruction. The resulting synthesis was utilized as a basis for the conceptualization of IFP-orchestrated teaching and the development of the IFP-Supported Learning Orchestration Model mentioned in the Results and Discussion section.

Data analysis

The selected literature was analyzed through thematic narrative synthesis. Four themes containing key concepts, theoretical views, and findings were selected and organized: teacher agency, IFP affordances, pedagogical orchestration, and classroom interaction. The findings were subsequently examined across research to determine common trends, differences and correlations among the themes. Finally, the findings were synthesized to build a conceptual understanding of IFP-orchestrated teaching and to guide the proposed IFP-Supported Learning Orchestration Model.

RESULTS AND DISCUSSION

Deconstructing the Orchestrator Role: From Explainer to Orchestrator

The synthesis of the reviewed literature indicates a shift in the teacher's role from presenting information to orchestrating technology, learning activities, and classroom interaction.

Table 1. Deconstructing the Orchestrator Role: From Explainer to Orchestrator

Pedagogical Dimension	The Explainer (Presentation-Oriented)	→	The Orchestrator (Orchestration-Oriented)
1. Classroom Flow & Social Planes	Mono-plane instruction, almost exclusively class-wide lecturing (Explaining H1/H2 slide content). Students remain passive listeners.	→	Dynamic multi-plane transitions (Individual → Group → Class). Teachers coordinate flow and synchronize cooperative learning.
2. IFP Technology Utilization	Used strictly as a substitution tool. Functionally equivalent to a static whiteboard or conventional projector (old wine in new bottle).	→	Leveraged multimodally for active manipulation (drag-and-drop, annotation, cloud-based gamification, interactive quizzes).
3. Student Engagement & Agency	Low behavioral and cognitive engagement. High risk of student distraction and loss of focus. Student voice is passive or responsive only.	→	High engagement and agency. Students physically interact with content on-screen, discuss strategies, and co-author meaning in groups.
4. Assessment & Feedback Loop	Summative and delayed. Evaluations are centered on paper assignments or individual testing, limiting immediate diagnostic actions.	→	Formative and real-time. Immediate digital response collection, visual tracking of progress, and interactive group-level debriefs.
Key Shift From delivering content to orchestrating learning with technology, interaction, and purpose.	What Enables the Shift? Teacher Agency & Professional Knowledge + Pedagogical Use of IFP Affordances + Orchestration of Activities & Interaction + Real-time Monitoring & Adaptive Decision-making		
	Ultimate Goal Dialogic, collaborative, and meaningful learning in the IFP-supported language classroom.		

Sources: Beauchamp & Kennewell (2013); Prieto et al. (2011); Song (2021); Tosuntaş et al. (2021); Amarasinghe et al. (2021).

Table 1. Deconstructing the Orchestrator Role: From Explainer to Orchestrator

The first transformation is flow and social structure in the classroom. In a presentation-oriented class the interaction is generally teacher-led and class-wide and students are primarily recipients of information. Conversely, the orchestrator handles transitions between various social settings such as activities for individuals, groups and entire classes and coordinates them. Pedagogical orchestration research demonstrates teachers need to coordinate different activities, participants, and technology resources while adjusting to changing classroom settings [6], [41], [43].

The second transformation is the instructional use of interactive technology. The IFP is not merely a digital version of an old-fashioned board or projector. Instead, teachers might make use of its affordances of interactivity and multimodality in learning activities. Tosuntaş et al. [42] show that the integration of technology and the performance of instructors are connected to teachers' technological pedagogical competence and their adoption and use of interactive whiteboards. This implies that the educational value of interactive technology is partly determined by teachers' understanding and use of its capabilities, and not by the technology itself.

The third shift is about student engagement and agency. Interactive technology used by teachers to facilitate group work, discussion and shared activities can provide students with opportunities to progress from largely receiving knowledge to more active participation. The literature also suggests, however, that interactive technology does not necessarily lead to active learning. The contribution is defined by the way teachers organise events and distribute opportunities to participate. The orchestrator job, therefore, requires establishing conditions for students to engage with subject, peers, and the teacher, rather than merely responding to teacher explanations.

The fourth transform is about assessment and feedback. The orchestrator role enables teachers to view learning as it happens during activities and respond to students' needs in real time. Technology-supported orchestration can assist teachers to observe classroom activity and to decide whether to intervene, direct or alter an activity ([44] evaluation is thus more related to continuous classroom engagement rather being confined to evaluation following instruction.

Overall, the literature suggests that the shift from explainer to orchestrator is not simply a change in the teacher's use of technology. It is a transformation in the way teachers organize learning, interaction, involvement and feedback. But the teacher remains key, but the role changes from delivery of material to managing technology affordances and learning activities and student participation. This change allows us to view the IFP not just as a presenting device but also as a pedagogical affordance that may be intentionally orchestrated in the language classroom.

IFP as a Pedagogical Affordance

The synthesis reveals that the educational usefulness of IFP is not merely rooted in its technical aspects, but rather in the opportunities these features generate for teaching, interaction and learning. Research into interactive whiteboard technology shows that teachers make pedagogical decisions regarding when, how, and for what goals to use interactive technology. For example, Murcia [45] discovered that intentional use of IWB entails the conscious selection and sequencing of digital materials and can generate chances for active multimodal learning. The technology becomes pedagogically useful when it acts as a mediator of interaction between teachers, students, and learning resources, rather than just as a display device.

Some of the affordances are particularly important to IFP-supported instruction. Multimodal presentation allows teachers to mix text, graphics, audio, video and other ways of representing things. Annotation and visual manipulation allow teachers and students to mark, organize and edit content live on screen. Sharing material can provide a common visual environment for whole-class conversation, and working together allows students to collaborate with content and peers around a shared display. These possibilities are pedagogically more important when students are given opportunity to interact with the technology rather than merely observing it. Murcia [45] differentiates technical and physical interactivity from the more complex conceptual interactivity, where IWB tools promote exploration and the co-construction of understanding through many modalities.

In language learning, these affordances are particularly relevant since interactive technology may support both language input and communicative participation. Schmid [2] observed that EFL teachers must construct IWB-based resources that provide opportunities for learners to interact with the board and learning content, regulate interaction so that learners are able to actively participate, and keep a proper balance in the use of technology. This indicates that an IFP can serve not just as a medium of presentation, but also as a venue for language practice, engagement and involvement.

However, the presence of such affordances does not imply their meaningful educational utility. Beauchamp and Kennewell [41] demonstrate that the use of IWB can evolve from a mere substitution for

the conventional board to a more sophisticated form where technology becomes a hub for classroom activities. Likewise, Luo et al., (2023) point out that the incorrect use, limited integration with instructional content, insufficient teacher understanding, and instructor domination of the board can constrain the potential of interactive technology. Thus, the pedagogical effectiveness of IFP depends not only on what the technology can do, but also on how teachers pick, combine, and adapt its affordances to fit particular learning goals and classroom situations.

In conclusion, IFP should be viewed as a set of educational affordances, rather than as a digital display device. Its multimodal, interactive and collaborative potential become significant when teachers intentionally pick and choreograph them in response to learning objectives, student engagement, and classroom demands.

IFP-Orchestrated Teaching in the L2 Classroom

The synthesis indicates that the IFP is pedagogically meaningful when teachers actively connect its aspects to learning aims, classroom activities, and student interaction. Teachers can utilize IFP in the EFL classroom to supply multimodal language input, to draw attention to linguistic forms, to structure interactive exercises and to give students the chance to work with learning content. For example, Schmid [2] said that EFL teachers should be able to produce IWB-based resources that encourage student participation, manage activity around the board, and keep an appropriate balance in technology use.

Teachers can structure the different IFP characteristics to fit the objective of an activity. Multimedia display can be used to mix text, graphics, audio and video as input for language. Annotation can help with vocabulary highlighting, grammar correction and feedback. Touch and object manipulation can be used to match, sequence, categorize, and engage in other interactive language activities. Teachers can share screens to show students' work for discussion. Interactive quizzes or polls can give rapid feedback on students' responses. These features can be consequently employed in a single learning sequence rather than be used separately. This is consistent with the more general conception of orchestration where teachers align technical resources, learning activities and student participation.

For example, a teacher might use an IFP in a vocabulary lesson by showing images and target words, asking students to match the words with the relevant images, using annotation to critique wrong answers, and displaying student replies for whole-class discussion. For example, during a speaking activity, the teacher may show a visual cue, have students discuss the prompt in groups, then utilize the IFP to gather and display the main thoughts from each group. The teacher therefore switches between presenting, student participation, monitoring and feedback. The IFP is less a screen for showing information and more a shared classroom space. Likewise, research on the use of IWBs in an ESL immersion classroom suggests that multimedia and tactile engagement can help learning but opportunities for longer dialogic interaction do not necessarily increase.

This is significant as the availability of interactive features does not necessarily mean interactive pedagogy. Many IFP capabilities may be used by a teacher, while still managing most classroom interaction. Schmid [2] stresses the importance for the management of the interaction in a way that learners can participate actively. Thus, orchestration is not just a matter of which IFP elements teachers employ, but also when they use them, how they combine them, and how they divide participation among students.

The teacher's orchestration is also dynamic. Lessons in the classroom rarely go exactly as planned and teachers need to monitor students' answers and decide what to do next. This links the use of IFPs to the more general concept of pedagogical orchestration, where teachers manage, observe, assess and facilitate classroom processes, adapting to unanticipated changes. Thus, teaching with IFP support includes a continuous cycle of picking an affordance, organizing an activity, assessing student reactions, and modifying instruction.

IFP-orchestrated teaching can therefore be understood as a dynamic process in which teachers purposefully select, combine, and adapt IFP features to coordinate language input, learning activities, interaction, participation, and feedback..

IFP-Orchestrated Teaching in the L2 Classroom

Orchestrating technology-supported learning can be demanding because teachers need to monitor students, manage activities, and respond to classroom changes at the same time. Dillenbourg [7] defines orchestration load as the effort required to monitor and adapt learning activities, and cognitive resources required to comprehend information and take action. Also, Prieto et al. [46] discovered that real-time monitoring of class level can take significant demands on teachers.

Amarasinghe et al. [44] detailed the load of orchestration through three processes: situation evaluation, goal development, and action-taking. Teachers first assess the situation, choose a suitable response and then act. These steps can be repeated again and over as teachers work with students, activities, and technology.

The difference between reflecting and directing also highlights how technology support might influence orchestration. Mirroring presents teachers with data that they must interpret themselves. Guided support offers more direct information on critical classroom occurrences. Amarasinghe et al. [44] found that teachers did more orchestration actions and more targeted interactions under guiding support than under mirroring support.

The results indicate that more technological features do not necessarily facilitate teaching in IFP-supported instruction. Teachers still have to supervise, make choices and alter their behavior according to the needs of the classroom. Thus effective orchestration is a balance between IFP affordances and teachers' cognitive and practical capacity.

The teacher's orchestration is a constant process of evaluating classroom situations, making pedagogical decisions and taking action. IFP can extend the pedagogical opportunities for teachers but the effective orchestration of IFP relies on the teachers' capacity to manage the demands of real-time classroom interaction.

The IFP-Supported Learning Orchestration Model

Synthesis of the literature results in the IFP-Supported Learning Orchestration Model. The paradigm includes five aspects, namely teacher agency, socio-cultural theory, dialogic instruction, teacher orchestration, and IFP affordances. Together, these viewpoints account for how teachers harness IFP to enhance interaction and learning.

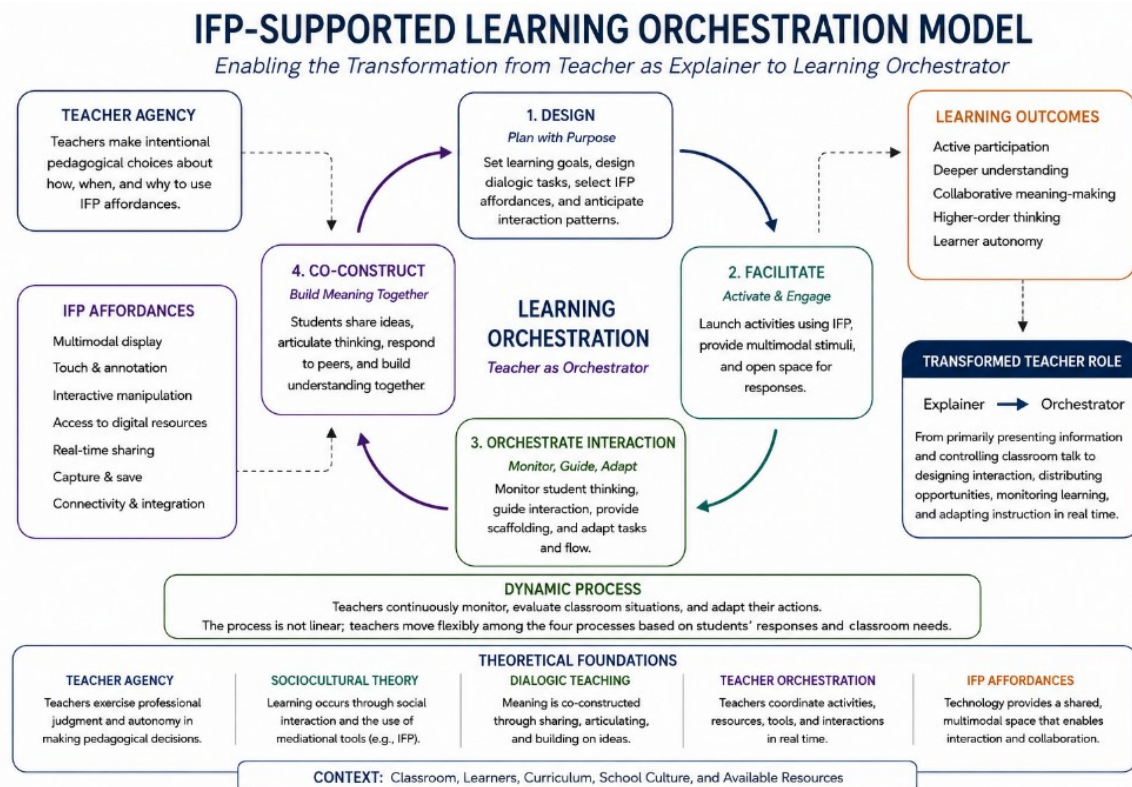


Figure 2. IFP Supported Learning Orchestration Model

Learning orchestration is central to the concept, which comprises four interrelated stages, namely Design, Facilitate, Orchestrate Interaction and Co-construct. In the Design stage, teachers determine learning goals, arrange activities and pick appropriate IFP affordances. In the Facilitate stage teachers present activities and allow pupils to respond. During the Orchestrate Interaction phase, teachers observe students, ask questions, provide scaffolding, and modify activities. In the Co-construct stage students share ideas, respond to others and construct understanding together.

Teacher agency affects teachers' choice and use of IFP affordances. The methodology does not therefore presume that teachers use technology in the same way. Their decisions are determined by the learning objectives, the students, the classroom situation and the resources available. It expands earlier technology-centered approaches by focusing on the pedagogical choices made by instructors and their influence on the utilization of technology.

The concept also places IFP as a mediational instrument which can aid interaction and meaning-making. Its affordances can create a shared area for multimodal input, manipulation, collaboration and involvement.

However, these affordances are pedagogically valuable only when teachers intentionally connect them to learning activities and classroom engagement.

It's not a linear process, it's a dynamic one.' Teachers are always watching pupils, evaluating classroom events, and changing their behavior. This is consistent with the concept of orchestrating load mentioned by Amarasinghe et al. [44]. The orchestration process is also affected by the classroom circumstances, curriculum, school culture, resources available and learners.

The ultimate purpose of the paradigm is to facilitate active involvement, deeper comprehension, collaborative meaning-making, higher order thinking and learner autonomy. It also reflects a change in the function of the instructor from Explainer to Orchestrator.

The IFP-Supported Learning Orchestration Model considers IFP use a teacher-mediated and adaptive process. Teacher agency guides the choice of IFP affordances, and orchestration relates these affordances to learning activities, engagement and co-construction. Teachers are always monitoring and adjusting to the demands of the classroom. The approach combines teacher agency, IFP affordances, dialogic interaction, pedagogical orchestration and orchestration load into one framework to comprehend IFP-supported language education.

CONCLUSION

This narrative literature review explored the role of teachers in utilizing affordances of IFP to mediate learning orchestration in language classes. The review demonstrates the importance of teacher agency in the selection and use of IFP affordances. Teachers do not automatically use the IFP functionalities. They make pedagogical decisions according to learning goals, students, classroom settings, and resources available.

The review also suggests that IFP can be used by teachers to create learning activities, to stimulate participation, to choreograph classroom interaction and to support co-construction of meaning. IFP offers chances for dialogic engagement, cooperation, and active student participation by way of multimodal display, annotation, interactive manipulation, sharing and other affordances. However, these potential are conditioned by teachers' organization and adaptation of the use of technology in classroom interaction.

The results also suggest that orchestration is a dynamic and challenging process. Teachers need to be able to observe student responses, analyze classroom settings, make pedagogical decisions, and change activities as they happen. These processes contribute to the orchestration workload. Other contextual elements such as learners, curriculum, classroom environment, school culture and accessible resources also influence how teachers organize IFP-supported learning.

In this review, this synthesis leads to the proposal of the IFP-Supported Learning Orchestration Model. It unifies teacher agency, IFP affordances, dialogic interaction, pedagogical orchestration and orchestration load in one framework. It conceptualizes orchestration as four interrelated processes – Design, Facilitate, Orchestrate Interaction and Co-construct. These processes together describe the transition from teachers using IFP to transmit knowledge to utilizing IFP to structure interaction, participation and meaning construction.

In summary, the review points to a shift in the teacher's function from Explainer to Orchestrator. It is not the technology itself that is causing the change. It occurs when teachers intentionally choose IFP affordances, set up interaction, notice learning, and tailor instruction to meet classroom needs. The suggested model thus provides a conceptual framework for understanding how IFP can promote teacher-led, dialogic and adaptive language education.

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