The New Face of Technology-Enhanced Language Learning (TELL) with Artificial Intelligence (AI): *Teacher perspectives, practices, and challenges*

Adriadi Novawan*, ¹, Osamu Ikeda², Stuart Anthony Walker³

¹Department of Language, Communication, and Tourism Department, Politeknik Negeri Jember, Indonesia

> ²Faculty of English Language and Literature Bunkyo University, Japan

³Faculty of Education, Communication, and Language Science Newcastle University, United Kingdom

*Corresponding email: <u>novawan@polije.ac.id</u>

Abstract

The field of language education has recognized educational transformations driven by advancements in information and communication technology (ICT). From traditional tools to intelligent digital innovations, the journey has been marked by continuous evolution. The integration of Artificial Intelligence (AI) in language education, termed Intelligent Technology-Enhanced Language Learning (ITELL), represents a paradigm shift. This paper explores the reality of ITELL in higher education, focusing on how AI is used in language teaching, teachers' perspectives, policy implications, challenges, and strategies employed. A qualitative case study approach explored the integration of AI in TELL in higher education. Seven English language teachers in Indonesia, employing AI tools, participated in in-depth, semistructured interviews. Thematic analysis of interview data provides insights into teachers' practices, perceptions, and challenges of AI in language education. Methodological rigor was ensured through member-checking, peer debriefing, and adherence to ethical guidelines. The findings emphasize the positive impact of AI on enriching teachers' perspectives, enhancing materials development, enlivening inclass teaching, and facilitating efficient assessments. However, challenges such as depersonalization and ethical considerations were highlighted. A hybrid model that balances AI-driven personalization with human interaction was promoted. Fundamental prerequisites for successful AI integration include teacher professional development, aligned curriculum, pedagogical exploration, and a comprehensive policy framework.

Keywords: Intelligent Technology-Enhanced Language Learning, Artificial Intelligence, Technology-Enhanced Language Learning, Higher Education, Language Teaching, Teacher Perspectives, Challenges, Hybrid Model

1. Introduction

The development of language pedagogy has been influenced by innovations in media and technology; started with the conventional one long time ago, immediately changed into more complicated and intelligent digital innovations. What has happened shows that the revolutionary technological breakthroughs in information and communication technology (ICT) have fundamentally altered the nature of education in general (e.g. Leu et. al., 2004), and especially language education (e.g. Chapelle, 2003; Alkamel & Chouthaiwale, 2018).

Early attempts at incorporating technology into language education relied on traditional instruments such as projectors and blackboards (Chun et. al., 2016). The introduction of radio in the early twentieth century had become a crucial impetus in media and development which transformed the area of language education (Salaberry, 2001; Thorne & Phane, 2005). Tape recorders and voice recordings immediately sped up the transition to personalized and interactive learning experiences (Kukulska-Hulme & Shield, 2008; Chinnery, 2006; Godwin-Jones, 2011). The emergence of computers in the 1970s and 1980s signaled the beginning of a new era for educators as they investigated *Computer*-Assisted Language Learning (CALL) (Levy, 1997; Warschauer & Healy, 1998; Beatty, 2013; Chapelle, 2001). The proliferation of the internet in the 1990s increased worldwide language resources, including multimedia aspects to increase interaction (Thorne & Phane, 2005; Warschauer & Healy, 1998). The arrival of mobile devices in the twenty-first century prompted the development of language learning applications (Mobile-Assisted Language Learning), allowing students to study languages whenever and wherever they want flexibly independently (Kukulska-Hulme & Shield, 2008; Godwin-Jones, and 2011; Kukulska-Hulme & Viberg, 2018). With the development of various technologies in language learning, a broader term; Technology-enhanced language learning (TELL), has been introduced and accepted to cover the existing and ongoing development all digital technologies in language education (Adair-Hauck, et. al., 2000; Yang & Chen, 2007). The incorporation of Artificial Intelligence (AI) culminates in the transformation of Technology-Enhanced Language Learning (TELL) into Intelligent Technology-Enhanced Language Learning (ITELL) (see e.g. Schmidt & Strasser, 2022; Huang et al., 2023).

While AI has great potential in TELL, there is a significant gap whether AI can be formally put into language curriculum, sustainably executed in the pedagogy, and used appropriately in the assessment (Park & Son, 2022; Kessler, 2018; Rafiee & Abbasian-Naghneh, 2021). This gap is critical because AI has been widely introduced long time ago for its offering unprecedented opportunities to facilitate individualized learning and adaptive evaluation (Carbonell, 1970). Like other technology-enhanced language learning (e.g. in Novawan et al., 2021; Novawan et. al., 2019), challenges of integrating AI in language teaching lie in policy, its practice in pedagogy, and teacher professional development (Miao et. al., 2021). This paper reports a thorough examination of the reality of Intelligent Technology-Enhanced Language Learning (ITELL) in higher education context. The research close in on how AI has been used in language teaching, with a focus on teachers' views in terms of AI potentials, policy, its practice, and challenges.

2. Literature review

TELL (Technology-Enhanced Language Learning) refers to a set of approaches and technologies that are intended to help language learners provide interactive and engaging ways to learn and practice language skills (Yang & Chen, 2007; Shadiev & Yang, 2022). Technologies used include computers, software, multimedia, and internet resources. The incorporation of AI in language education has been claimed to provide significant impacts on students' language learning (Liang, et.al. 2023; Huang, et. al., 2023). To understand the transformative impact of AI on personalized, adaptive language education, it is necessary to distinguish between standard TELL and TELL with AI (ITELL).

2.1. TELL and ITELL

In language education, TELL has become synonymous with the use of digital technologies to enhance students' language learning experiences (Chapelle, 2003; Chun et. al., 2016; Zhang & Zou, 2022; Yang & Chen, 2007).

While studies found that it outperformed purely traditional teaching methods in terms of adaptability, customization, and dynamic content development, it had limits. The incorporation of AI into TELL, can be called *Intelligent Technology-Enhanced Language Learning* (ITELL) constitutes a paradigm change, offering some advancements that redefine language education possibilities. AI brings intelligence to language learning platforms through its machine learning algorithms and natural language processing capabilities (Kannan & Munday, 2018; Pokrivcakova, 2019). ITELL goes beyond static information by providing dynamic and adaptable learning experiences that are tailored to the needs of each individual student (Table 1).

No	Characteristics	TELL	TELL with AI (ITELL)
1	Adaptability and	Limited adaptability;	Highly adaptive; tailors content
	Personalization	often follows	dynamically based on individual
		predefined learning	learner profiles, preferences, and
		paths	progress
2	Feedback	Feedback may be pre-	Offers real-time, personalized
	Mechanisms	programmed and lacks	feedback using AI algorithms to
		real-time adaptability	analyze learner responses,
			fostering immediate corrections
			and improvements
3	Intelligent Tutoring	Relies on predefined	Utilizes intelligent tutoring
	Systems	exercises and lacks	systems that assess, adapt, and
		sophisticated tutoring	guide learners through
		capabilities	personalized learning, enhancing
			the quality of instruction
4	Language	Assessment processes	Automates language assessments,

Table 1. Comparison between TELL and TELL with AI

	Assessment and	may be manual, with	providing accurate and adaptive
	Proficiency Tracking	limited adaptability to	proficiency tracking, allowing for
		individual proficiency	a more nuanced understanding of
		levels	individual capabilities
5	Natural Language	Limited use of NLP for	Harnesses advanced NLP
	Processing (NLP)	basic language	capabilities for sophisticated
		exercises	language interactions, allowing
			for more realistic language
			practice through chatbots and
			virtual assistants
6	Dynamic Content	Often relies on pre-	Generates dynamic and
	Generation	existing content and	contextually relevant content,
		materials	adapting to individual learning
			needs and providing a more
			engaging learning experience
7	Predictive Analytics	Limited ability to	Incorporates predictive analytics
		predict learner trends	to anticipate learning patterns,
		and adapt proactively	allowing educators to tailor
			interventions and support
8	Multimodal Learning	Incorporates	Enhances multimodal learning
		multimedia elements	with a broader range of interactive
		but may not fully	and immersive experiences,
		exploit diverse modes	accommodating various learning
		of communication	styles

2.2. Narrow and general AI

The application of AI in TELL can follow a spectrum of AI-enhanced tools in terms of to which extent a tool can possess adaptability to imitate human capacity. AI is commonly categorized into narrow and general AI (Table 2) (Searle, 1980; Wang & Siau, 2019; Mitchell, 2019; Adam et. al., 2021; Barrat, 2023).

Narrow AI, also known as Weak AI, specializes in specific language learning tasks without consciousness or true cognitive abilities. AI tools categorized into narrow system include Language Tutoring Systems, Automated Language Assessment, Chatbots for Language Practice, Language Translation Services, and Predictive Analytics. These systems are task-oriented and operate within predefined parameters, excelling in well-defined language learning objectives. On the other hand, General AI, or Strong AI, aims for a comprehensive and versatile approach, possessing cognitive abilities akin to human intelligence. While still theoretical in some extent, General AI holds extensive potential applications in language education. For instance, the creation of a human-like robot assistant could revolutionize language teaching, providing personalized tutoring, interactive practice, real-time feedback, and cultural insights.

	Table 2. Comparison between Narrow and General AI					
No	Characteristics	Narrow AI	General AI (in some extent,			
			hypothetical)			
1	Specialization	specialized and excels in	versatile and capable of			
	vs. Versatility	specific tasks	understanding and adapting to a			
			broader range of language learning			
			contexts			
2	Precision vs.	provides precise solutions	offers a holistic approach,			
	Holistic	to specific language	addressing various language skills			
	Learning	challenges	and adapting to individual learning			
			journeys			
3	Efficiency vs.	highly efficient in	represents a more ambitious goal,			
	Ambition	performing designated	aspiring to replicate comprehensive			
		tasks	human-like cognitive abilities			
4	Applicability	highly applicable to	offers adaptability to diverse			
	vs. Adaptability	predefined language	language learning scenarios,			
		learning tasks	accommodating different learner			
			profiles and needs			

Studies of AI integration in language education are increasing lately with the United States becomes the most active country, as reported by Huang et al. (2023). The study has found ten major themes related to AI in language education predominated by narrow AI tools: Automated Writing Evaluation (AWE), Intelligent Tutoring Systems (ITS) for reading and writing, Automated Error Detection, Computer-Mediated Communication (CMC), Personalized Systems for Language Learning, Natural Language and Vocabulary Learning, Web-Resources and Web-Based Systems for Language Learning, ITS for Writing in English for Specific Purposes, Intelligent Tutoring and Assessment Systems for Pronunciation and Speech Training, and Affective States and Emotions. These theme areas operate as focal points leading inquiries into the application of AI tools in language learning.

Considering narrow and general categorization, these language learning tools are categorized as narrow or general AI based on their scope and adaptability (Kortelling, et. al., 2021). Narrow AI includes Automated Writing Evaluation (AWE) and Automated Error Detection (AED), which are task-specific with established criteria. ITS for Writing in English for certain Purposes, Intelligent Tutoring and Assessment Systems for Pronunciation and Speech Training are oriented toward narrow AI which is specialized to certain tasks. On the other hand, others such as Intelligent Tutoring Systems (ITS), Personalized Systems for Language Learning, Natural Language and Vocabulary Learning, and Web-Resources for Language Learning can exhibit aspects of both Narrow and General AI depending on the width and the extent to which they offer adaptive content delivery and incorporating advanced models. The choice between Narrow AI and General AI depends on specific learning objectives, desired personalization levels, and the complexity of language skills addressed. The integration of these forms of AI promises a transformative impact on language learning, offering tailored and adaptive experiences to diverse learners worldwide (Dwivedi et. al., 2021).

3. Method

This case study method aims to provide a rich, detailed exploration of the integration of AI in TELL, offering valuable insights into teachers' practices, perceptions, and the implications of AI on language education. The research adopts a qualitative case study design (Yin, 2009) to explore the reality of Technology-Enhanced Language Learning (TELL) with a focus on Artificial Intelligence (AI) technology. This design allows for an in-depth understanding of how AI was applied in the teaching and learning of English based on the perspectives of teachers regarding its effectiveness and affordance for students.

The participants in this study consist of 7 English language teachers who had integrated AI technology into their teaching practices in a higher education setting in Indonesia. A purposive sampling technique was employed to select teachers with diverse backgrounds, experiences, and levels of familiarity with AI in language education. The aim is to capture a comprehensive range of perspectives and practices. They were coded T-1, T-2, T-3, T-4, T-5, T-6, and T-7.

In-depth, semi-structured interviews served as the primary method of data collection. Teachers were asked about their experiences using AI tools, the specific applications employed, and their perceptions of the impact on students' language learning. Open-ended questions encouraged participants to share insights and elaborate on their views. The interviews cover key areas:

- a. The specific AI tools and platforms used in language teaching
- b. Teachers' perceptions of the effectiveness of AI in enhancing language learning
- c. Challenges encountered while integrating AI into language teaching
- d. Strategies employed by teachers to optimize AI for language development

The interview data were transcribed and subjected to thematic analysis. Initial coding involved identifying recurring themes related to the application of AI in language teaching and teachers' perspectives on its effectiveness and affordance. Subsequently, a deeper analysis was conducted to explore patterns, variations, and insights within the data.

To enhance the trustworthiness of the findings, member-checking was employed, allowing participants to review and validate the initial analysis (Creswell & Miller, 2000; Lincoln & Guba, 1985; Morse, 2015). Peer debriefing involved discussions with colleagues well-versed in qualitative research to ensure multiple perspectives on the interpretation of data (Creswell & Miller, 2000; Lincoln & Guba, 1985). Informed consent was obtained from all participants, assuring them of confidentiality and the voluntary nature of their participation (Faden & Beauchamp, 1986). The study adheres to ethical guidelines,

ensuring the privacy of participants throughout the research process. The study acknowledges potential limitations, such as the subjective nature of self-reported teacher perspectives and the specificity of the context, which may affect the generalizability of findings.

4. Findings

4.1. The specific AI tools and platforms used in language teaching

The analysis of interview data with teachers revealed a significant familiarity with various Narrow AI tools that can be used freely (Quote 1, 2, and 3), including those categorized into Language Translation Services (LTS), Automated writing evaluation (AWE), Automated error detection (AED), Chatbots, Intelligent Tutoring System (ITS), and Webbased system for language learning (WBS).

Among those, Chatbots, LTS, AWE, and AED were the most widely used AI tools by teachers for lesson preparation, materials development, teaching media, assessment (Quote 1), and professional development (Quote 3). However, teachers expressed hesitations about recommending students, particularly to use chatbots and LTS due to uncertainties about whether students will use them wisely and effectively for their language development, or merely using them to do their assignments without being aware of their language development (Quote 2 and 3) which is consistent with Kooli (2023).

- 1. I like using various AI tools that I've bookmarked in my browser for quick and easy access. Perhaps, I am now a bit reliant on using them such as ChatGPT, Google Translate, Readlang, Grammarly, Quillbot, and many others. These tools have been very important in many things such as materials development, teaching processes, and assessing students' work. (T-7)
- 2. In my class, I introduced several AI tools for learning English, such as Virtual Writing Tutor and Quillbot. It seems to me that they were intrigued by the features of these tools that enable instant output. Then, I found a trend where many students heavily rely on these tools, particularly ChatGPT which I didn't recommend actually. They used it merely to complete assignments, without being aware of whether they will improve their writing skill or not. (T-2)
- 3. Yes, sure. I use the free version of ChatGPT and learn a lot from it. There are many things I can do to help plan and prepare my materials, and it's excellent. I've even improved my language skills through ChatGPT. But, I am doubtful about whether students will use it effectively. Why? I see that their assignments are excellent, but during in-class exams where they have to write on paper directly, they seem to struggle. (T-6)

Most of the participants considered that it is necessary for them to introduce AI tools to support both classroom learning processes and students' individual learning endeavors. This signifies a concerted effort to incorporate the use of specific AI tools that align with the targeted objectives outlined in the curriculum. However, the challenge was consistent, students were prone to use the tools unwisely (Quote 4 & 5) which suggest the importance of teaching morality while teaching language (Novawan et al., 2020).

- 4. I have used some AI tools in my class and include tutorials on how to utilize them to enhance their language proficiency. And it has been beneficial so far. However, I cannot anticipate students might be reliant on the tools for merely doing their jobs. (T-1)
- 5. I know much and I have data, for example in writing activities where students were equipped with some AI-based tools, in fact they fail to harness them effectively to enhance their proficiency. There was a tendency for them to be sluggish and not seriously committed to the learning process. (T-3)

On the other hand, tools like ITS and WBS were less frequently employed by teachers. Interestingly, among the other tools, teachers recommended these tools to their students, recognizing their potential effectiveness in self-directed language learning.

- 6. I sometimes access online sources, just to get ideas for my own materials. I know some such as Khan Academy, BBC Learning English, and many others. I recommend my students to use such resources for improving their English skills. I think, encouraging intensive practice provided by these systems will be very useful for self-directed learning. (T-4)
- 7. I actually don't use online materials, I mean it depends on needs. But even though they are great, of course, especially those enhanced with AI, but most of them are not free. However, I am aware that there are free alternatives available which I recommend to my students. I think it is much, much, better than they rely on ChatGPT. (T-1)

While teachers were well-versed in a variety of Narrow AI tools, the preferences and recommendations vary. Chatbots and Language Translation Services were commonly used by teachers. They generally agree that both have given benefits for those who want to learn language. However, they often hesitate to recommend them to their students due to the significant potential for misuse and unwise use which impede learning process (Quote 7). On the other hand, other tools such as ITS and WBS, although less frequently used by teachers, were encouraged for intensive student practice (Quote 6 & 7). The findings suggest a nuanced landscape of AI tool adoption, with varying levels of teacher endorsement and awareness about their applications in language education.

4.2. Teachers' perceptions of the effectiveness of AI in enhancing language learning

In this study, the integration of AI into language teaching and learning offered many tools and resources which enhances language learning outcomes particularly in four key areas: enriching teachers' perspectives/knowledge during material planning, enhancing materials development, enlivening in-class teaching and learning, and facilitating practical and sustainable assessments.

4.2.1. Enriching teachers' perspectives/knowledge

AI tools were considered useful to support teachers in their teaching (Quote 1, 3, & 6). Particularly chatbots used by teachers might offer pedagogical guidance by providing instant responses to teachers' queries on teaching methodologies and even anything related to English language teaching and acquisition. They serve as repositories of knowledge on teaching and learning theories and can deliver explanations and recommend evidence-based practices as what it is prompted. However, chatbots may make mistakes in providing accurate information for teachers seeking to enhance their understanding of pedagogical theories. These limitations are caused by their reliance on pre-programmed responses and potential lack of nuanced comprehension. In addressing this challenge, teachers can complement chatbot interactions with other reliable sources, such as academic literature, workshops, or discussions with fellow educators (Quote 8). By combining AI assistance with traditional methods, teachers can anticipate the risk of misinformation and ensure a more comprehensive understanding of pedagogical theories.

8. I actually enjoy communicating with a chatbot because it assists me in brainstorming on various topics, including my academic field. It can engage in discussions effectively. But, it is important to acknowledge their limitations. Because they can make mistakes, we need to check them based on more reliable sources. (T-5)

4.2.2. Enhancing materials development

AI tools enhance materials developments in three ways:

- a. providing teachers with ready-to-use learning materials
- b. assisting the process of materials development
- c. helping generate new materials

ITS and WBS including those organized on social media can provide teachers with rich and interesting materials for teaching particularly those enhanced with more adaptive system (Quote 10). While AWE, AED, and LTS can be very useful to accompany teachers create teacher-tailored materials (Quote 9). Chatbots and video generators can help teachers create new materials such as reading texts, writing models, audio, and video (Quote 9).

- 9. I mostly generate instructional materials on my own, and AI has been a wonderful help for me. For instance, I used Bing Chat and created a lot of reading texts and writing models. Then I used Virtual Writing Tutor or perhaps Grammarly to analyze and assess my students works. It's very efficient now. (T-5)
- 10. Yes, I use online materials like BBC, TED, YouTube, and many others. But, it depends on what types of skills I want to teach. Some provide students with more personalized and adaptive learning which of course become easy to follow without teachers' guidance. I think these materials motivate students to learn more and more. (T-7)

4.2.3. Enlivening in-class teaching and learning

The incorporation of AI technologies enlivens in-class teaching and learning experiences, fostering dynamic and engaging language education environments (Fryer & Carpenter, 2006; Timms, 2016). AI-powered chatbots, language tutors, and interactive platforms including social media-based source provide students with immediate feedback, enabling them to practice and apply language skills in real-time. This not only enhances the learning process but also encourages active participation and communication (Quote 11). Furthermore, AI-driven virtual reality and augmented reality applications offer immersive language learning experiences, transporting students to authentic language contexts (Luckin & Holmes, 2016). Teachers, armed with these AI tools, can create interactive and stimulating lessons that cater to diverse learning styles.

11. The best thing is that accessibility to AI-powered technologies is plenty. I found in my class that using these resources in teaching helps teachers create a dynamic learning environment that encourages engagement, connection, and communication. Some students who were previously silent are now actively engaged in the class communication. (T-2)

4.2.4. Practical and efficient assessment

AI has revolutionized the way of assessment in language education. AI tools provide teachers with innovative services for practical and efficient evaluation (Luckin & Holmes, 2016; Zawacky-Richter et. al., 2019).

Automated grading systems powered by AI streamline the assessment process, offering immediate feedback to students. This accelerates the learning loop, allowing students to grasp and correct mistakes promptly. Moreover, AI-driven language proficiency tests, such as speech recognition assessments, gauge students' language skills authentically. This not only provides a comprehensive evaluation but also reduces the subjectivity often associated with manual grading. Additionally, AI can assist in the creation of adaptive assessments that adjust difficulty based on individual student performance, ensuring a tailored evaluation experience.

- 12. We formally use an LMS, and I think automated grading system has been integrated into it. However, I more often used other free tools available online to check my students' works because these are easier to use. (T-5)
- 13. We have PCs in our English Laboratory which is installed some software of online tests including pronunciation assessment. So, we sometimes give our students some computer-based tests, including pronunciation tests. But, not all teachers know how to use these tools. (T-7)

4.3. Challenges in integrating AI into language teaching

Challenges in using AI in the classroom involve bias policy, inferior learning, and teacher professional development.

4.3.1. Bias policy

With the available choices of ITELL tools, students now have greater opportunities to learn a foreign language more effectively. In this study, however, AI tools were spontaneously and sporadically applied in language education without being guided by a rule or any institutional policy (Quote 14 & 15). Consequently, both educators and students engaged in "the jungle" of divergent teaching and learning process without an exact direction. Teachers identified that many students were familiar with many AI tools and used them without teachers' guide. For educators, using AI in the classroom without reference, guide, and policy can lead to uncertainty and bias in facilitating learning, and therefore, cannot anticipate AI-related challenges. Similarly, for students, using AI without adhering to guideline or policy, can easily undermine their own learning process (see Quote 2, 3, 4, 5, & 15).

- 14. I used AI spontaneously, I think, without any guides or policy from my employer. The problem is, we don't have the rules of using AI for both teachers and for students. So, many teachers feel hesitate of using AI because they want to avoid the negative sides of AI. But many are confident in using and exploring new tools. (T-2)
- 15. Yes, right. There is no official regulation for that. But, it is obvious that using AI is useful and I allowed my students to use it for learning, but, I reject assignments created by AI, for examples, essays, reports, videos, vlogs, and others. Students have to learn making these with the correct process. (T-5)

4.3.2. Inferior learning process

The use of AI in TELL was considered advantageous for language teachers in supporting them to plan, execute, and evaluate their teaching. However, AI potentials can pose controversial issues especially related to the increase of students' ethical and academic infringements such as plagiarism, dishonesty, laziness, reliance on technology, and inferior learning activity (Quote 2, 3, 4, 5, 15, 16, & 17). While this informs the imperative of AI-oriented policy and teacher professional development, these bad habits and attitudes are also indications for a broader and global challenge of AI-enhanced education in terms of values and morality (see Novawan et. al., 2020; Aisyiyah & Novawan, 2017).

- 16. I have seen my students use AI inappropriately. They are happy that AI changes their learning process into easy and comfortable activities, but they don't realize that their reliance on technology is in the wrong way and that's why that is inferior to language development. (T-6)
- 17. I think most of students living in this AI-enhanced learning are becoming lazier and maybe weaker. I mean, they want the shortest way of completing their learning. That's not going to be great for learning. They are easily getting reluctant during difficult challenges and even angry with their teachers. (T-7)

4.3.3. Teacher professional development

Educators have widely used AI in English language education; nevertheless, there is a significant lack of sufficient preparation in terms of its adoption into the lesson plan, teaching practices, and evaluation strategies (Quote 12, 13, 14, 15) (see e. g. Pokrivcakova, 2019; Park & Son, 2022). Teachers appreciated AI tools but using them without sustainable plan contributes to unanticipated student infringements and demotivation from both the teacher's themselves and their students (Quote 2, 3, 4, 5, & 18). These findings indicate that professional development specifically prepare teachers for the implementation of ITELL is necessary.

18. I thought my students will appreciate AI, but in fact, they now become lazier, and their behavior is sometimes uncontrolled. I hate when checking their works and assignments and found them disappointing. But, I knew that I need more time to explore AI for specific teaching and learning purposes. (T-3)

4.4. Strategies employed by teachers to optimize AI for language development

The participants' views of integrating AI in language teaching include the need for explicit plan of using AI, how to navigate ITELL properly, and a hybrid model of ITELL.

4.4.1. Explicit adoption of AI in TELL

Despite the negative sides of using AI in TELL, the research participants confirmed that AI needs to be adopted formally into the curriculum, pedagogy, and assessment of language education (Quote 19 & 20). In terms of curriculum, the inclusion of AI should be aligned with educational objectives and standards which needs educators and policy makers to handle this deliberately. Pedagogically, teachers should explore innovative instructional strategies that seamlessly integrate AI tools into their teaching methodologies. Assessment practices should also evolve to accommodate the integration of AI. These need a policy framework at institutional and educational levels and teacher professional developments (Quote 20).

- 19. AI can be very useful if applied properly. We need policy, we need to put it specifically in lesson plan such as what tools we will need and how to execute them, how about the assessment, and many others, factors need to be considered. (T-4)
- 20. Drawbacks of using AI of course exist. It is because we haven't adopted AI consistently. AI has grey and black areas to teachers, then specific trainings or workshops on using AI tools are necessary. (T-6)

4.4.2. Navigating ITELL for students

In the teachers' view, most of the controversial issues are around students' learning. Thus, navigating "teaching" to create the appropriate learning environment is necessary. Making the rules in class is one of solutions. It needs to be clear that the rules need not to be very complicated, nor too simple, depending on the situation and need, and but it firstly

encourages students to distinguish between *using AI for learning* and *using AI for doing assignment* (Quote 2, 3, 4, 5, 15, 16, 17, and 18). The first means using AI tools to strengthen language learning such as pronunciation, speaking, reading, writing, and listening. While the later means students ask AI to make assignment for them with limited learning process impacted on their language development.

4.4.3. Organizing a hybrid model of ITELL

Based on the interviews, there is a consensus on a view which consider the need for reducing purely technology-enhanced language learning by organizing a hybrid model. This is expected to provide a balanced and holistic language learning experience, optimize the strengths of AI, and maintaining the invaluable aspects of human interaction in the language learning process.

- 21. I think, maybe, that's why a blended or hybrid approach is relevant to this situation. Using all types of technology in class, teachers facilitate learning in class, not AI. (T-2)
- 22. I have some conversations with my colleagues about this. We cannot be trapped in this polemic, I guess. So, we need to make balance between using technology and face-to-face activity. It means that, AI and technologies support our teaching and learning activities, but teachers' responsibilities in facilitating learning cannot be removed from class. (T-7)

5. Discussion

The emergence of AI has reshaped the landscape of language education, offering new possibilities for both learners and educators (Beatty, 2013; Luckin & Holmes, 2016; Miao et. al., 2021). From narrow to more general AI tools such as adaptive learning platforms and intelligent tutoring systems, the impact of AI is profound and multifaceted. AI is now not just a technological tool but a catalyst for reimagining how language educators teach, and students learn languages.

However, integrating AI into technology-enhanced language learning is not without challenges (Huang et. al., 2023; Kessler, 2018; Pokrivcakova, 2019). As presented in the findings section, firstly, the majority use of AI by teachers was around helping in making lesson planning and developing materials. Secondly, the moderate use was for classroom learning activity and teacher professional development. While, even though significantly promising, using AI for language assessment was the lowest pedagogical activity mentioned by the participants. Teachers' perceptions of the effectiveness of AI in enhancing language learning were positive. AI was considered impactful during lesson planning, materials development, teaching and learning process, assessments, and for students' independent learning. However, the findings have also reflected the lack of both teachers and students' critical reflection on AI uses, the need for guiding policy and system, the need for teacher professional development, and the need for further exploration of ethical

and educational approaches in the application of AI in higher education (see also e.g. Miao et. al., 2021; Zawacky-Richter et. al., 2019).

Another important concern is the potential depersonalization of the learning process experienced by students. While AI offers personalized feedback, the absence of human elements may result in a lack of emotional connection (Zawacky-Richter et. al., 2019; Brynjolfsson & Mcafee, 2017) which is essential in authentic language learning (van Lier, 2014; Novawan et. al., 2022). Therefore, maintaining a balance between the AI-driven personalization and the human touch remains an ongoing challenge for language teachers (Luckin & Holmes, 2016; Alam, 2021). A hybrid model is considered necessary due to its opportunities to combine the strengths of both traditional and technology-enhanced approaches (Watson, 2008). While AI offers numerous advantages, including personalized learning, adaptive feedback, and accessibility, it is crucial to acknowledge the irreplaceable role of human interaction in language acquisition (Stracke, 2007). It means that, as technology continues to evolve rapidly, language educators are responsible for harnessing the potentials of AI to craft quality learning environments (Luckin & Holmes, 2016; Alam, 2021).

As revealed in this study, the integration of Artificial Intelligence (AI) into language curriculum, pedagogy, and assessment requires some fundamental prerequisites including sufficient teacher professional development (Huang et. al., 2023; Alam, 2021; Pokrivcakova, 2019). In terms of curriculum, the inclusion of AI should be aligned with educational objectives and standards. Language educators have to be trained specifically on particular AI tools and resources that complement the curriculum and contribute to the development of language proficiency (Pokrivcakova, 2019). The curriculum should incorporate activities that optimize AI for personalized learning experiences, adaptability to individual needs, and the enhancement of language skills.

Pedagogically, language educators need sufficient times to explore innovative instructional strategies elaborating theories and practice to integrate technologies including AI, into their teaching methodologies (Novawan et. al., 2021). This involves creating a conducive learning environment where students can interact with AI technologies collaboratively. Educators play a crucial role in guiding students on how to effectively use AI tools as supplementary resources, fostering critical thinking, and ensuring that AI complements rather than replaces teachers' roles. Assessment practices should also evolve to accommodate the integration of AI. Traditional assessment methods may need to be modified to include AI-driven evaluation components. This requires careful consideration of how AI can provide timely and constructive feedback on language proficiency, ensuring a balance between automated assessment and human evaluation (Pokrivcakova, 2019; Kannan & Munday, 2018).

Furthermore, a policy framework at institutional and educational levels is essential (Kessler, 2018; Miao et. al., 2021; Pokrivcakova, 2019; Kannan & Munday, 2018). This framework should address ethical considerations, data privacy, and guidelines for responsible AI use for both teachers and students. Collaboration between educators,

policymakers, and technology developers is crucial to establishing a coherent and effective integration of AI into language education. Regular evaluations and updates to the curriculum, pedagogy, and assessment practices should be conducted to stay abreast of technological advancements and ensure continuous improvement in language education. The successful incorporation of AI into language education demands a collective effort to harness its potential while upholding the values and objectives of effective language learning (Kannan & Munday, 2018; Luckin & Holmes, 2016; Alam, 2021; Pokrivcakova, 2019).

6. Conclusion

The history of ICT in language teaching reflects a continuous evolution from traditional tools to cutting-edge digital solutions (e.g. Chapelle, 2003; Alkamel & Chouthaiwale, 2018). Each phase has brought about new possibilities, enhancing the efficiency and accessibility of language education. From radio broadcasts to AI-driven language apps, each innovation has contributed to creating a more immersive, interactive, and personalized language learning experience. As we navigate the future, the integration of emerging technologies will likely continue to shape the landscape of language education, opening doors to innovative and effective teaching methodologies.

The findings of this study provide essential insights into the integration of Artificial Intelligence (AI) in language education, specifically within the context of Intelligent Technology-Enhanced Language Learning (ITELL). The integration of AI into language education represents a transformative phase with enormous potential. The implications of the study extend to various stakeholders such as language educators, policymakers, and curriculum developers. The journey towards Intelligent Technology-Enhanced Language Learning requires a collaborative effort to navigate the evolving landscape of technology and education, ultimately shaping a more dynamic and inclusive language learning experience for students. By addressing the identified challenges and current practices, educators and policymakers can harness the benefits of AI while upholding the values of effective language learning.

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