Research Article

Investigating the use of AI tools in English language learning: A phenomenological approach

Wu Xiaofan [1]
 0000-0002-0241-8641

Nagaletchimee Annamalai [1,2*]
 0000-0002-8600-5624

[1] School of Distance Education, Universiti Sains Malaysia, George Town, MALAYSIA
[2] Department of Languages and Culture, College of Humanities and Sciences, Ajman University, Ajman, UNITED ARAB EMIRATES
[*] Corresponding author: naga@usm.my

ARTICLE INFO	ABSTRACT
	This investigation utilized a phenomenological approach to investigate the experience of English language educators in employing artificial intelligence (AI) tools into English language learning. The study used purposive sampling and 20 participants were interviewed. The data analysis was guided by Bronfenbrenner's (1979) ecological systems theory, particularly microsystem, exosystem, and macrosystem. The findings demonstrated that the AI tools enable interactive, personalized, and gamified learning experiences that enhance student engagement, motivation, and English proficiency. The study also emphasized the importance of technological content knowledge and technological pedagogical knowledge in improving instructional methodologies. Challenges, including AI-related distractions and reduced direct interaction between educators and students, were identified, necessitating a balanced integration of these tools despite the inherent advantages. Furthermore, the research underscored the significance of institutional support, which encompasses ongoing professional development and technical assistance, to facilitate the successful integration of AI into education. **Keywords:** artificial intelligence, English language learning, phenomenology, qualitative study, technology

INTRODUCTION

Artificial intelligence (AI) technology has advanced significantly in recent years, and this has profound effects on research, education, politics, the economy, and technology (Luan et al., 2020). According to Celik et al. (2022), AI technologies are becoming more and more common in education and have the potential to improve teachers' instructional methods significantly. Molenaar (2022) claims that incorporating AI technology into the classroom improves instructors' capacity to co-manage a challenging learning environment. AI technologies improve education by offering advantages including real-time feedback and adaptable, customized learning programs (Shahzad et al., 2024). They also make teaching more effective, providing benefits that are difficult to obtain with conventional techniques (Akgun & Greenhow, 2022; Kabudi et al., 2021; Yang et al., 2022). A growing number of educators across all disciplines are incorporating these resources into their lessons (Chen et al., 2022). Huang et al. (2023) claim that incorporating AI into educational models, especially for English language learning, represents a revolutionary change that has fundamentally altered teaching methodologies and learning environments, improving student outcomes, academic performance, and attitudes toward learning in the post-pandemic era. Research has shown how AI can enhance the effectiveness of teaching English. These benefits include machine translation, intelligent tutoring systems (ITS), and automated writing evaluation (Annamalai, 2024; Hockly & Nicky, 2023; Liang et al., 2023; Wei, 2024).

AI can assist students to enhance their English language skills, which will enhance their motivation to learn the language and their proficiency in grammar, vocabulary, reading, and writing (Annamalai, 2024; Annamalai et al., 2023). Even though AI has a lot of promise to improve English language acquisition, there are still several obstacles to its practical application. The majority of current research in AI-based language learning concentrates on efficacy evaluations and technical functionality (Huang et al., 2023), frequently ignoring the theoretical foundations that inform pedagogical approaches. There has been limited research on using AI and teacher educators in English language learning (Annamalai, 2024). Some studies have partially addressed this issue psychologically (Du, 2024; Long & Lin, 2023), as students' mental health could be crucial to their foreign language learning adaptability. In the field of language teacher education, there is a growing call to investigate teachers' experiences within broader and more complex contexts (Liu et al., 2021), examining teaching through social, cultural, political, and institutional lenses (Kramsch & Steffensen, 2008). How AI technology can be incorporated into well-established theory to improve language learning is not well understood.

Based on this ground, the current study looks at ecological theory to close this gap. The current study aims to close this gap by delving into ecological theory. The framework offers insights into the dynamic interactions between learners, educators, and AI systems, emphasizing the importance of context, interaction, and affordances in language acquisition.

A compelling need exists to investigate the educator's use of AI tools from a broader perspective. Developing an ecological perspective on teachers' experience plays a crucial role in addressing these gaps, particularly within the understudied area of English language teachers. This approach may also offer valuable insights into improving the quality of teaching in diverse educational contexts. To explore these possibilities, this study utilized a qualitative approach, focusing on educators in higher education institutions in China who used AI tools in their teaching and learning activities.

In China, fluency in English is becoming increasingly essential for academic achievement, career prospects, and international competitiveness (Bolton & Graddol, 2012). The nation's education system has undergone a rapid digital transformation, with AI tools, including AI-based tools and online platforms, becoming essential parts of the educational landscape (Yuan, 2024). China's education system is distinct, marked by high expectations, exam-focused learning, and large class sizes. This context may result in different interactions with smart teaching technologies compared to other countries.

A phenomenological investigation could reveal the specific experiences of educators. The real-world experiences of teachers with these technologies would be thoroughly investigated through a phenomenological study, which would disclose the impact of AI tools on language learning, classroom interaction, and motivation. The current study underscores the importance of examining and understanding the lived experiences of individuals. This approach provides a comprehensive, in-depth comprehension of their interactions with AI, their obstacles, and their perceived advantages, providing insights that quantitative methods may fail to capture. Phenomenological studies emphasize participants' voices, enabling educators to exchange their experiences and viewpoints. This empowerment can result in a greater sense of ownership and engagement among educators, as their insights and feedback are valued and considered in the ongoing development and implementation of AI tools.

The results of this investigation may assist in identifying optimal strategies for employing AI in the acquisition of the English language. It has the potential to disclose innovative applications of AI, successful integration methods, and practical strategies. Simultaneously, it can emphasize common obstacles, including technical difficulties, resistance to change, or a lack of training, which can inform the development of professional development programs and support systems.

LITERATURE REVIEW

The following section explored the theoretical framework guiding this research and reviewed the literature on AI.

Ecological Theory

Ecological system theory investigates how humans interact with the environment. Studies have examined language teaching from an ecological perspective (Edwards & Burns, 2016; Kramsch & Steffensen, 2008;

Mercer, 2021; Miller & Gkonou, 2018; Peng, 2012). Bronfenbrenner's (1979) ecological systems theory is frequently employed in the study of language learning psychology. For example, teacher emotion and identity (Nazari et al., 2023), the development of emotionality with young English learners (Zein, 2019), learning strategies (Oxford, 2017), and teacher engagement (Edwards & Burns, 2016), resilience (Mansfield et al., 2018), well-being (Hofstadler et al., 2020), and professional qualities (Chu et al., 2021). The research contexts of these studies are described using the concepts of nested ecological systems, that is, microsystem, exosystem, and macrosystem. Comprehending the instructors' experience necessitates understanding the intricacy of the interactions between these systems. van Lier's (2004) notion of affordance provides valuable insight into this.

Affordance views learning ecology as a way of engaging with "a great living system" (van Lier, 2004, p. 3), thereby positioning individuals as active agents interacting with socio-political, institutional, cultural, personal, and interactional ecologies. In language learning, affordance is defined as "a particular property of the environment relevant to an active, perceiving organism" (van Lier, 2000, p. 252), helps learners harness resources from their ecological systems. Learners aware of affordances in their environment are more likely to succeed in language learning. Agentic teachers can utilize these affordances to advance their professional growth.

Applied to the use of AI by educators in English language learning, this theory can explore the dynamics between teachers, students, and AI technology. AI-based tools, such as adaptive learning platforms, language apps, and virtual assistants, offer various action opportunities to teachers and students. Research could investigate how educators recognize and apply these affordances in their teaching. For example, How do teachers use AI for pronunciation improvement, grammar correction, writing evaluation, or personalized feedback for English learners? The theory explores how educators perceive the potential of AI tools to improve English learning and how they engage with these tools to create enriched learning environments. The study could focus on which AI affordances teachers find beneficial or limiting in language teaching.

Inspired by van Lier's (2000) affordance and Bronfenbrenner's (1979, 1992, 1993) ecological system theory, this study employed the framework to explore teachers' experience in teaching the English language with the help of AI tools. According to Bronfenbrenner's (1992) framework, the microsystem encompasses immediate contexts where individuals interact and build interpersonal relationships. For teachers, this includes their pedagogical knowledge, technology knowledge, teaching skills, and their interactions with students' interactions. The exosystem involves connections between two or more settings, at least one of which does not directly involve the individual but affects their immediate environment (Bronfenbrenner, 1993, p. 24). This involves school authorities and parents. School authorities implement educational policies and manage daily teaching activities, impacting teachers' performance and potentially causing anxiety. Parents may express their concerns about livestream teaching directly to teachers. The macrosystem represents broader cultural and societal contexts, including beliefs, resources, and lifestyles (Bronfenbrenner, 1992). By combining van Lier's (2000) affordance theory with Bronfenbrenner's (1979) ecological systems theory, researchers can gain a more in-depth understanding of AI usage in English language learning in China. This integration can guide the current study by examining how AI affordances are recognized and used at various ecological levels. For instance, what are the educator's perceived AI affordances in the classroom (microsystem), and how do these perceptions and views influence school policy (exosystem)? They can also explore how teachers' training and interactions between different ecological layers affect educators' AI use. For instance, how do broader policy decisions (exosystem) have an impact on teachers' training and support (macrosystem), and how does this influence the affordances teachers perceive in AI tools for language learning?

By integrating van Lier's (2000) affordance theory with Bronfenbrenner's (1979) ecological systems theory, researchers can develop a comprehensive perspective on how educators in China engage with AI in English language learning. This framework facilitates the exploration of individual and systemic factors that influence AI integration in English language learning, offering valuable insights for policy and practice.

The research question for this study is What are English educators' experiences with using AI tools across different ecological systems?

Table 1. Demographic information of the participants

Characteristic		Frequency (n)	Percentage (%)
Gender	Male	4	20
	Female	16	80
Age	21–25	2	10
	26–30	5	25
	31–35	4	20
	36–40	6	30
	≥ 41	3	15
Teaching experience	1–5	8	40
	6–10	3	15
	11–15	5	25
	16–20	2	10
	≥ 21	2	10
Learning experience	Bachelor	11	55
	Master	8	40
	PhD	1	5
Level of technology use	Frequent	11	55
	Sometimes	6	30
	Seldom	3	15
	Never	0	0
Title	Lecturer	6	30
	Associate professor	9	45
	Professor	5	25

METHODOLOGY

Research Design

In this study, the phenomenological approach, a qualitative research method, was used to gather the perspectives of English language educators in China regarding AI tools in English language learning. Phenomenological research refers to a qualitative research design that explores a subject, event, or situation that is not fully understood but about which some knowledge exists (Merriam, 2002). This design delves deeply into the subject to uncover individuals' experiences and interpretations of phenomena (ibid). Creswell (2013) defines it as "research that identifies the shared meaning of the lived experiences of multiple individuals concerning a phenomenon or concept."

Participants

A total of 20 participants were selected based on purposive sampling from a public university in the northern region of China. These educators are actively incorporating AI tools into their teaching practices, particularly in areas such as writing evaluation and conversational speaking exercises. The participants represent a diverse group with varying levels of experience and familiarity with AI technologies in the educational context. They are engaged in exploring how these tools can enhance language learning and teaching efficiency, addressing challenges specific to higher education settings in China. **Table 1** illustrates their demographic information.

Data Collection

The primary method of data collection for this study was semi-structured interviews. The interview questions were formulated based on the literature on ecological systems theory and its application in the field of English language teaching. Subsequently, a panel of education technology and English language learning experts reviewed and validated the initial set of questions. The final list of questions is attached in **Appendix A**.

Ethical Considerations

Before obtaining this information, the participants were informed about the nature of the study, its objectives, and the data collection procedure. They were assured that all collected information would remain confidential and be used solely for research. To maintain confidentiality and anonymity for all qualitative data,

participants' names were coded as ST1, ST2, ST3, ST4, etc. The participants were also informed that their voices would be recorded and transcribed for data analysis and that these recordings would be deleted from the online platform and any electronic devices after transcription. They were told that participation was voluntary and that they could withdraw from the study anytime. These measures were taken to adhere to ethical research standards and to encourage cooperation during the semi-structured interviews.

Data Collection

After providing the participants with information about the study and gaining their consent, a researcher scheduled a semi-structured interview with each participant at a convenient time. The researcher asked each participant to propose a time and then arranged the interview, accordingly, taking into consideration the participants' busy schedules. Each interview lasted between 35 and 60 minutes and was conducted in English. The researcher repeatedly reviewed the data to acquire a more profound understanding of the participants' perspectives before commencing the coding process, following the organization of the data. Braun and Clarke's (2019) thematic analysis were implemented to analyze the interview data. During the initial phase, the research assistant meticulously reviewed the transcripts line by line to acquire a comprehensive understanding of the material. The assistant ensured a thorough evaluation of the data by highlighting and annotating significant content within the transcripts during the second phase. In the third phase, a distinct research assistant reviewed all annotated transcripts to identify any discrepancies in interpretation. The authors resolved discrepancies, which resulted in the emergence of preliminary themes that represented recurring patterns throughout the dataset. The research team refined these themes in the fourth phase by combining or subdividing them into subthemes, iterating this process until the thematic map met their standards. They critically evaluated the themes to ascertain whether additional refinement, consolidation, or subdivision was required. Lastly, the team designated names that accurately reflected the essence of each theme and provided clear definitions to communicate the themes' significance in the fifth phase effectively. An additional researcher in the field was recruited to cross-check the codes and themes to achieve agreement to mitigate bias and guarantee reliability (Alshenqeeti, 2014; Gibbs, 2007). The two researchers deliberated and resolved minor discrepancies in codes and motifs until they reached a consensus.

A coding guide consisting of themes and subthemes was developed using MaxQDA 2022 software (Berlin, Germany). An initial draft of the coding guide was designed deductively based on the interview guide structure data. The number of text excerpts associated with each subtheme was recorded, and text excerpts were linked to pertinent subthemes.

Data Analysis

Following the data analysis, several themes were discussed using participant statements. The richness of the data resulted in some themes overlapping, and the quotations were presented with language errors as they were initially provided by the participants. **Table 2** illustrates the themes and sub-themes that were identified from the interview.

Microsystem

The results emphasize the substantial influence of AI tools on the microsystem, which is the immediate environment in which individuals interact directly. The microsystem encompasses the classroom environment and students' direct interactions with instructors, peers, and tools. **Table 3** illustrates the AI tools the educators use to enhance English language skills. AI chatbots and speech recognition applications like ELSA Speak and Pigai Net directly impact the student's English language learning experience. These tools are a component of the digital learning ecosystem that students interact with, which enables more personalized and immediate feedback and facilitates independent learning.

The interaction of these tools can be discussed under technological content knowledge (TCK) and technological pedagogical knowledge (TPK).

Table 2. Themes and sub-themes

Theme		Sub-theme	Frequency (n)
Microsystem	Positive	Immediate feedback	20
		Interactive elements	18
		Personalized learning	19
	Negative	Difficulties in building rapport with students	17
		Difficulties in class control	20
	TCK	Deeper evaluation	11
		Identify the proper tool	12
		Specific content domain	11
	TPK	Conversation simulation	15
		Instant feedback	8
		Peer collaboration	2
		Peer review	6
		Self-reflection	10
Exosystem	Clear policies		19
	Colleague support		18
	Cultural factors emphasizing innovation and technology		18
	Positive societal attitudes		30
	Professional development training		32
	Regular updates		8
	Regular workshops		14
Macrosystem	Fundings		8
	International policies		2
	National policies		15

Table 3. AI tools and language use

Product	Region	Frequency (n)	Percentage (%)	Function
Canva	Australia	6	30	Reading & listening
ChatGPT	USA	15	75	Reading & writing
Claude	USA	8	40	Reading & writing
ELSA Speak	USA	9	45	Speaking
Edmodo	USA	11	55	Reading, listening, writing, & speaking
Grammarly	USA	19	95	Writing
Google Assistant	USA	15	75	Reading & writing
Newsela	USA	12	60	Reading, listening, writing, & speaking
Pigai net	China	20	100	Writing
Quizlet	USA	7	35	Reading
Spark English	China	20	100	Reading & listening
Speechace	USA	13	65	Speaking

Technological Content Knowledge

TCK refers to a teacher's understanding of how technology can support and transform the teaching of specific content. Participants highlighted that AI tools provide more accurate and customized feedback on student writing by leveraging AI to analyze grammar, style, and content. This allows the teacher to focus on deeper aspects of writing, such as argumentation and coherence, while using AI to address lower-level concerns like grammar and syntax. ST12 demonstrated the use of Pigai Net, a Chinese website for English writing evaluation, which can give scores and suggestions. **Figure 1** illustrates the screenshot of Pigai Net.

ST12 further illustrates the use of Pigai Net.

> Students submit their essays or writing assignments through these tools, which automatically check for grammar, punctuation, style, and clarity. I customized the feedback settings to focus on specific areas, such as passive voice or overuse of adverbs, depending on your instructional goals. After students complete the first draft, they use the AI tool to identify common errors. In the next class, I will discuss the most frequent issues and strategies for improvement, encouraging peer review and revision.

Figure 1. Screenshot of Pigai's Net (Source: http://en.pigai.org/)

ST1 shared how voice assistants like Google Assistant developed conversation scenarios where students interact with AI to practice real-life dialogues. ST1 further elaborate that

> "AI tools can provide instant feedback on pronunciation and grammar."

Conversation scenarios where students interact with AI to practice real-life dialogues. ST12 is detailed by giving an example.

> Set up a travel scenario where students "check into a hotel" or "order food at a restaurant" with an AI assistant, which corrects their errors in real-time and suggests better expressions. With Google Assistant students practice their pronunciation with the app, which provides detailed feedback on how to improve specific sounds or intonation patterns. It also assigns specific phonetic exercises and track students' progress over time. Use class time to address common pronunciation challenges identified by the app.

Another example by ST2 is Newsela. Newsela supports the teacher in delivering content in a way that is accessible to all students, regardless of their reading proficiency. This is a prime example of how technology can be used to tailor content to meet diverse student needs. ST2 explained,

> Newsela provides reading materials at various levels of difficulty, allowing you to differentiate instruction based on student needs. I assign articles from Newsela on current events, where each student reads the article at a level appropriate to their reading ability. Follow up with comprehension questions tailored to their level.

For listening skills ST7 detailed on the use of Podcasts with AI generated transcripts. She elaborated that:

> I provide students with transcripts generated by AI to follow along as they listen. Use AI to generate comprehension questions tailored to the content.

Technological Pedagogical Knowledge

Integrating technology into pedagogical knowledge involves understanding how various technological tools can enhance teaching methods and improve learning outcomes. It is imperative to investigate the potential integration of TPK with factors such as conversation simulation, instant feedback, peer review, editing, self-reflection, and peer collaboration to establish a more effective learning environment, particularly in the context of English language instruction.

AI tools like Google Assistant and ELSA Speak are being implemented to improve students' conversational abilities. ST15 emphasized that

> "I employ Google Assistant to assist my students in the practice of conversations, with an emphasis on fluency, intonation, and pronunciation."

This AI-driven interaction enables students to participate in authentic dialogues, which aids in developing their oral communication abilities. Furthermore, ST15 implemented

> "ELSA Speak and Speechace, which offered my students immediate feedback on intonation, cadence, and pronunciation. In addition to providing corrections, these tools also replicate real-world conversation scenarios, thereby enhancing the effectiveness and interactivity of language practice".

Similarly, ST5 implemented Pigai Net to provide students with preliminary feedback on their writing assignments. ST5 also elaborated that

> "this tool identifies grammatical errors and suggests improvements, allowing students to self-correct before submitting their final drafts".

AI has also demonstrated a substantial impact on self-reflection. ST15 stated,

> "AI tools such as Speechace and ELSA Speak are not only used for feedback, but also to promote self-reflection".

After receiving AI-generated feedback on their pronunciation, students listen to their recordings and then write a brief self-assessment. This reflective practice helps students identify their strengths and areas for improvement, fostering a deeper understanding of their learning process.

In terms of peer collaboration, AI tools like Quizlet have been highlighted by ST14 as useful resources. ST14 said that

> Quizlet allows students to create flashcards and interactive games that reinforce vocabulary learning. The AI-powered recommendations within Quizlet help tailor practice sessions to individual student needs, making collaborative learning more personalized and effective. By creating and sharing flashcard sets or participating in group activities, students engage in collaborative learning, which enhances their collective knowledge and understanding of the subject matter.

The integration of AI in educational practices has significantly enhanced students' learning experience, particularly in conversation practice, feedback provision, self-reflection, and peer collaboration. These tools not only offer immediate and personalized feedback, but they also foster a more interactive and reflective learning environment, thereby enhancing the overall development of students' skills and knowledge. **Figure 2** illustrates the themes and subthemes for microsystems. **Figure 3** shows the word cloud for microsystem.

Exosystem

As the participants in this study emphasized, the successful integration of AI in educational contexts is significantly dependent on the proactive measures and support provided by school administrations. In numerous institutions, administrations have played a crucial role in facilitating this technological transition by providing explicit guidelines and policies regarding the appropriate use of AI-based smart instructors.
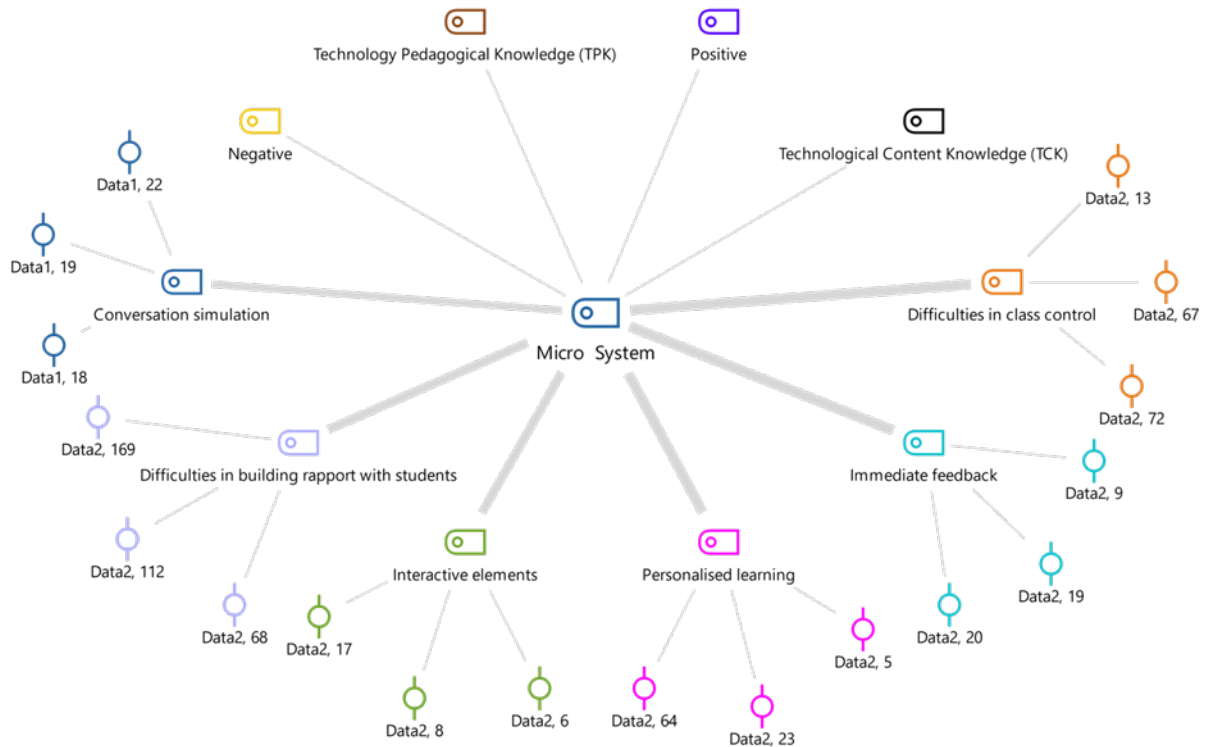
Figure 2. Themes and sub-themes related to microsystem (the authors' own work)
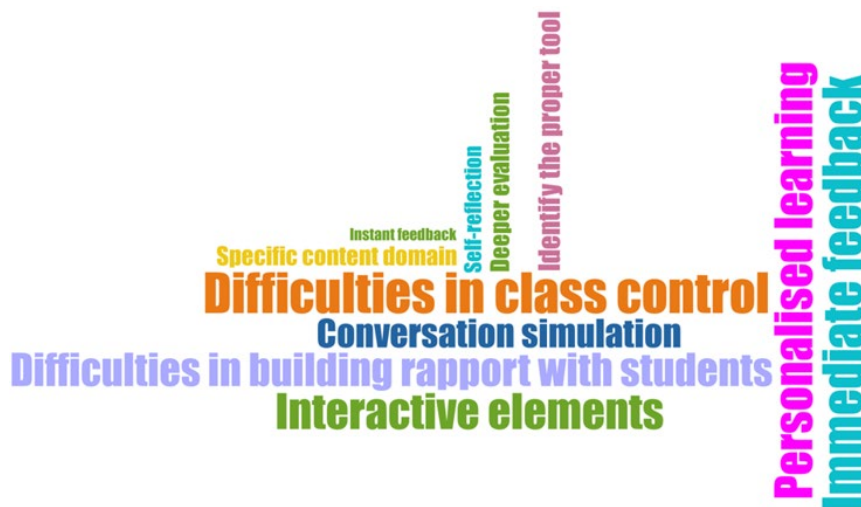

Figure 3. Word cloud for microsystem (the authors' own work)

ST15 clarified that

> the administration conducts consistent seminars and training sessions on AI tools, which reduces my anxiety by guaranteeing that I am adequately prepared to utilize these technologies.

In the same vein, ST4 specified that

> I have participated in numerous professional development sessions that were specifically designed to enhance the utilization of AI-enabled instructors in the classroom. These sessions have addressed a variety of subjects, including the most effective methods for integrating AI, ethical considerations and data privacy, and strategies for ensuring a balanced approach that merges human-led instruction with technology. This training has had a substantial impact on my confidence and has alleviated my apprehension regarding the use of AI in the classroom.

ST20 provided regular updates, access to resources, and defined policies to report on the school/s administration's support and the utilization of AI-smart teachers. She disclosed that

> They have implemented a technical support helpdesk and offer continuous training sessions, which substantially alleviates my anxiety. I am more confident in my use of AI technology when I am aware that there is institutional support and resources available.

Conversely, ST17 asserted that

> "the school administration endorses the utilization of AI by educators; however, it wishes to prevent AI-savvy educators from dominating the classroom."

ST17 also elaborated that

> "At present, there are no pertinent policies and an abundance of resources available to us".

ST8 maintained that

> I have received only a cursory and inadequate professional development regarding AI. This has not substantially enhanced my self-assurance or alleviated my anxiety regarding the implementation of AI in the classroom.

For ST13,

> Professional development opportunities have been accessible; however, they are not consistently comprehensive. Basic usage is frequently the focus of workshops, which do not delve thoroughly into the best practices for integration.

Educators are at the forefront of this technological transition, balancing the potential benefits with the challenges of adapting to new tools and methodologies. ST2 clarified that

> the utilization of AI-enabled educators has had a negligible influence on my work-life balance and workload. Although it can occasionally simplify specific tasks, such as grading, the time saved is frequently counterbalanced by the time required to acquire and implement new AI tools.

According to ST5 interactions with colleagues about AI smart teachers have been a mixed experience. ST5 further revealed that

> While some colleagues share my reservations and provide emotional support, others enthusiastically embrace the technology. These divided opinions don't significantly help reduce my anxiety, although discussions with like-minded colleagues do provide some comfort.

ST5 further concluded that

> as a teacher who values traditional, human-centered teaching methods, the mandated use of AI smart teachers has significantly increased my anxiety and discomfort in the classroom. While I strive to comply with school requirements, I continue to have serious reservations about the impact of these tools on the quality of education and the teacher-student relationship.

Figure 4 illustrates the themes and sub-themes related to exosystem.

Figure 5 is the word cloud related to exosystem.

Macrosystem

Macrosystem is the outermost layer of the ecological paradigm in Bronfenbrenner's (1979) framework. It delineates the more extensive cultural and societal influences that impact an individual. This layer comprises overarching laws, cultural values, and societal norms. It establishes the comprehensive framework that influences the subsequent strata of influence, including the impact of national policies on local practices and
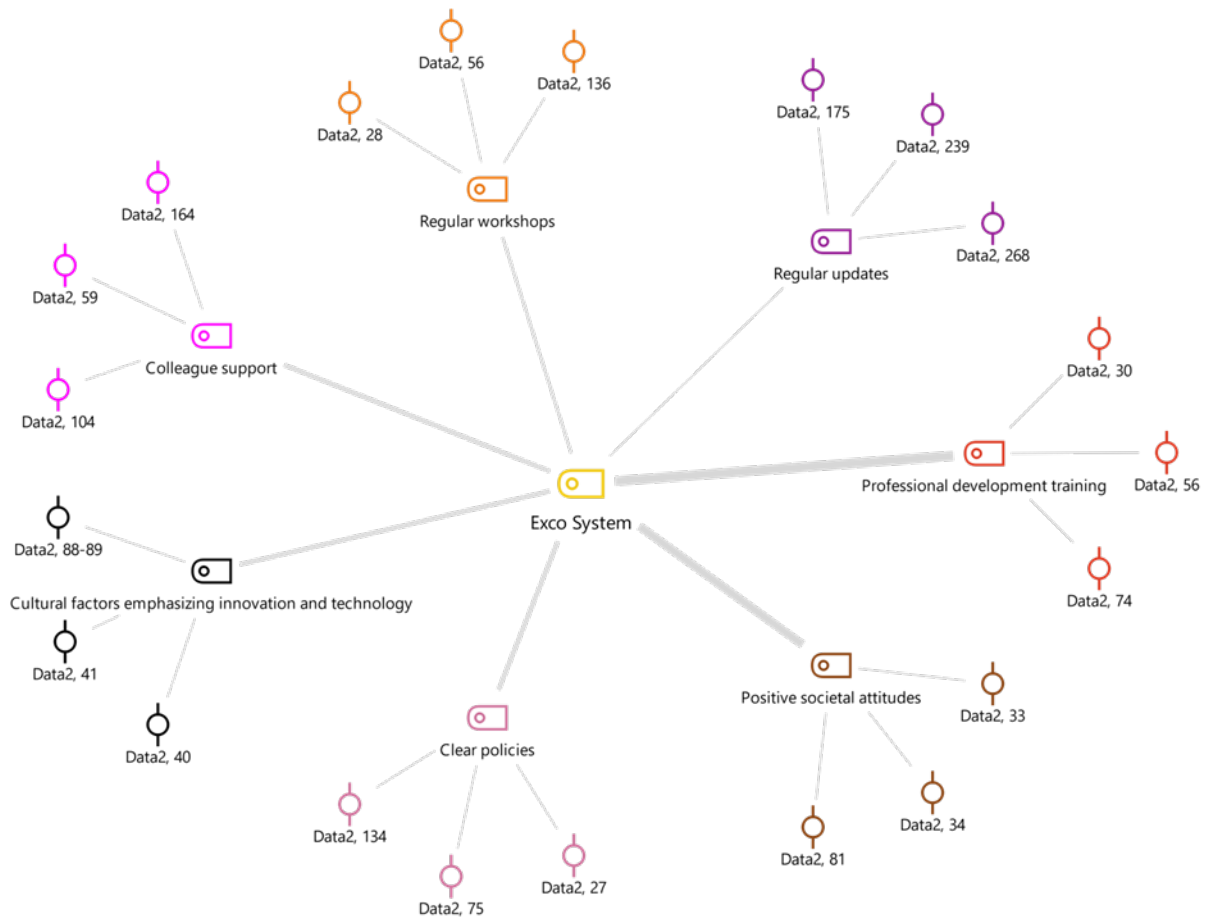
Figure 4. Themes and sub-themes related to exosystem (the authors' own work)

Figure 5. Word cloud for exosystem (the authors' own work)

individual experiences. Policy support for AI integration can significantly impact teachers' confidence and reduce their anxiety, as illustrated by an educator who benefited from specific funding policies:

> Policies that support AI integration in classrooms increase my confidence and reduce anxiety. A specific policy that has had a positive impact is one that provides funding for AI training and technology upgrades (ST7).

For ST9 societal attitudes and cultural factors can play a crucial role in shaping educators' comfort levels with AI technology, as reflected in the following perspective:

> Positive societal attitudes towards technology and AI in education make me feel more comfortable using AI smart teachers. Cultural factors that emphasize innovation and technology adoption mitigate my anxiety (ST16).
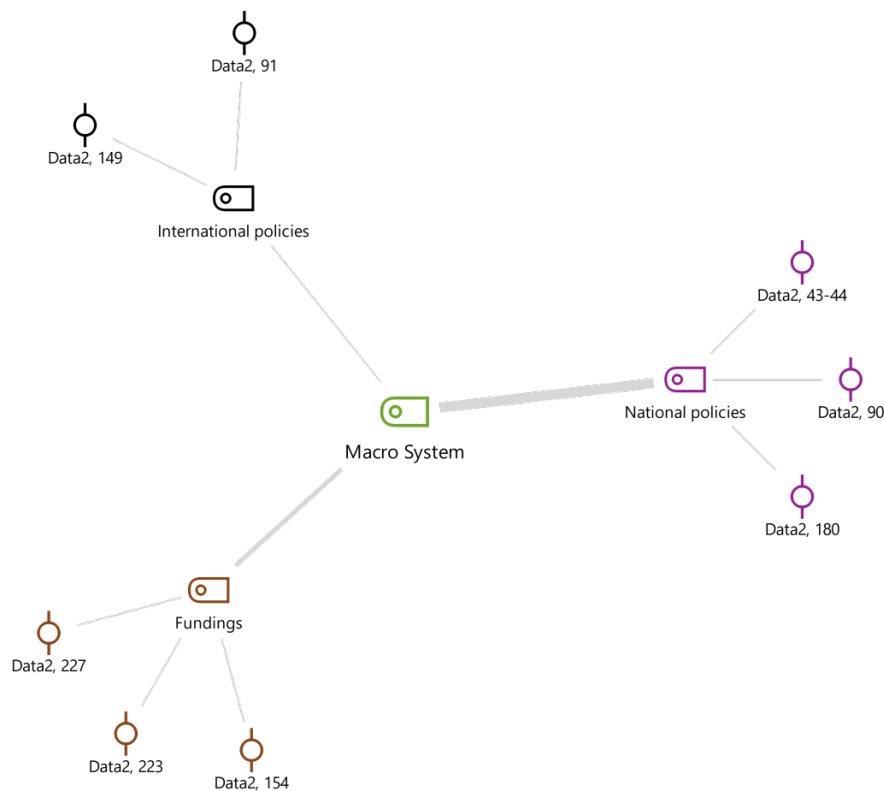
Figure 6. Themes and sub-themes related to macrosystem (the authors' own work)

Figure 7. Word cloud for macrosystem (the authors' own work)

ST19 felt that the rapid advancement of AI technology brings a mix of excitement and apprehension for new teachers, as seen in the following excerpts:

> As a new teacher, I perceive the rapid advancement of AI technology with a mix of excitement and apprehension. While I see it as an opportunity to enhance my teaching methods, I also worry about keeping up with the pace of change and how it might affect my future job prospects. This uncertainty contributes to some anxiety about my long-term career in teaching.

ST11 found that her willingness to adopt AI tools is tempered by the lack of sufficient support, highlighting the challenges posed by societal expectations:

> Societal attitudes towards technology and AI in education are generally positive, which aligns with my willingness to try these tools. However, the expectation to implement these technologies with limited support creates some anxiety. Cultural emphasis on innovation in education motivates me to persist despite challenges.

Figure 6 illustrates the themes and sub-themes related to macrosystem. **Figure 7** shows the word cloud for macrosystem.
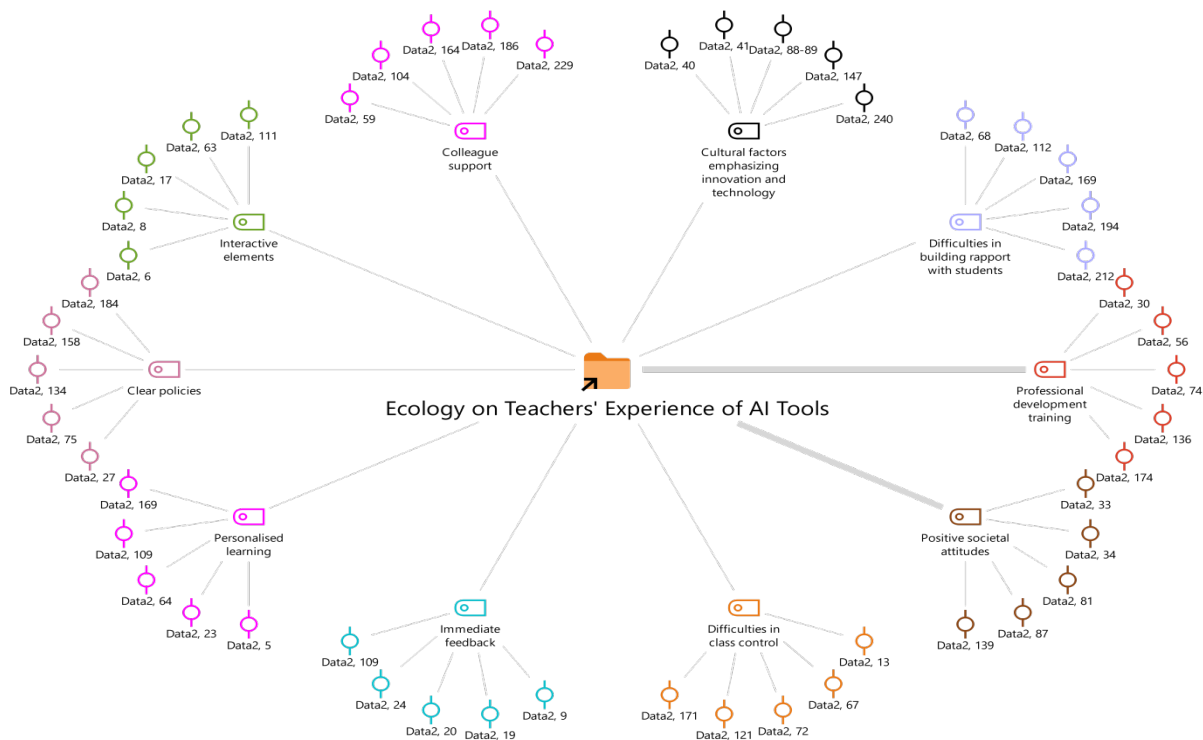
Figure 8. Teachers' experience based on ecological theory (the authors' own work)

Figure 9. Word cloud for microsystem, exosystem, and macrosystem (the authors' own work)

Figure 8 illustrates the three themes and sub themes based on ecological theory.

Figure 9 depicts the word cloud for microsystem, exosystem, and macrosystem.

DISCUSSION

The results of this phenomenological investigation into the utilization of AI tools by educators offer significant insights into the way these instruments are integrated into Bronfenbrenner's (1979) ecological systems theory. The microsystem, represented by the immediate environment in which direct interactions occur, influences students' educational experiences. These tools have become indispensable components of the digital learning ecosystem, which facilitate the acquisition of a variety of English language abilities, including reading, speaking, listening, and proficiency in writing. A number of participants emphasized the

profound impact of AI tools on the microsystem of students' learning environments, particularly in the context of improving their English language skills through instruments such as Pigai Net, Google Assistant, ELSA Speak, and Quizlet. Additionally, integrating these AI tools also serves as an illustration of the application of TPK, which is the utilization of technology to improve instructional methodologies. The learning environment is enhanced by the assistance of AI. The collective comprehension and retention of subject matter by students illustrate the significant function of AI in enabling content interaction and fostering peer collaboration and self-reflection within the microsystem. The participants noted that AI-driven tools frequently incorporate interactive features, such as gamification, which bolsters the notion that AI can improve student performance participation. The findings are consistent with Li and Lalani (2020), who state that using interactive AI tools can increase the motivation and engagement of students in the learning process. Participants' experiences with AI tools that provide immediate feedback are emphasized. Providing students with timely responses to their inquiries and assignments serves to rectify misconceptions in real time and maintain students' attention. This observation corroborates Wang et al.'s (2021) prior research, which discovered that students require prompt feedback to facilitate their learning. AI can serve as a teacher by precisely diagnosing learning processes and outcomes, providing personalized feedback, and evaluating success (Chaudhry & Kazim, 2022).

Nevertheless, participants also identified obstacles, including classroom management resulting from AI-related distractions. This underscores the necessity of a regulated integration of AI to guarantee that technology enhances rather than disrupts the learning process environment (Selwyn, 2019). Furthermore, AI has the potential to foster more robust relationships between educators and students by managing repetitive duties, but there are concerns about reduced direct interaction. This corroborates prior research regarding the significance of preserving a human element in the educational process (Chiu et al., 2023). The findings also aligned with Lewis et al. (2019), who suggested that AI operates as an interactive entity that engages in direct information exchange with students throughout learning.

These findings emphasize the function of AI in enhancing educational outcomes by enabling teachers to concentrate on higher-order teaching duties, including critical thinking and creativity, while AI conducts fundamental error correction. The results contribute to the expanding evidence that AI can provide personalized assistance, such as additional practice and feedback provided outside the classroom. This is consistent with research that suggests AI's potential to enhance learning efficacy and outcomes (Holmes et al., 2022). This interactive feature of AI technologies is directly related to influencing students' learning by establishing a more responsive and engaging environment in an educational setting.

The microsystem is consistent with the concept of Holmes (2019), which posits that the role of AI in the conceptualization of education has been approached in two primary ways:

(1) "learning with AI" and

(2) "AI education".

The process of "learning with AI" entails the direct use of AI as a tool for instruction and learning, such as through adaptive or ITS, personalized learning systems, and AI speakers. Conversely, the emphasis of "Learning about AI" is on the instruction of AI as subject matter, to provide students with the ability to design, develop, and apply AI algorithms by expanding their comprehension of AI (Baker & Hawn, 2022). Additionally, the results support the notion that interaction should not be exclusively regarded as AI tools operate as interactive subjects in a human-centered process participating in exchanging information with pupils during the learning process (Guzman & Lewis, 2020). However, participants also identified obstacles, including classroom management concerns owing to AI-related distractions. The necessity of a balanced approach is needed so that technology enhances rather than disrupts the learning environment (Selwyn, 2016). Furthermore, AI has the potential to facilitate building stronger relationships between educators and students by managing repetitive tasks. There are concerns regarding the reduction of direct interaction between educators. Previous studies support this assertion regarding the significance of preserving a human element in education (Heffernan, 2021).

The successful integration of AI in educational contexts is also determined by the exosystem, which encompasses the broader institutional context. Participants underscored the importance of school administrations' support for this technological transition. This discovery is consistent with the research conducted by Zhao and Frank (2003), which suggests that administrative support is indispensable for the

successful implementation of educational innovations. The administration's consistent organization of seminars and training sessions on AI tools was underscored by the results. This professional development is essential for teachers' efficacy, as it reduces anxiety and increases confidence in using AI technologies, as supported by Darling-Hammond's (2017) research. The significance of institutional support is further emphasized by the ongoing training sessions and technical support that participants report. Teachers experience increased confidence in their utilization of AI technology when they are aware that assistance is readily accessible. This finding is based on Fullan's (2007) research, which underscored the necessity of systemic support for educational reform.

Nevertheless, the use of AI tools is challenged by obstacles, as participants identified inadequate policies and resources for AI integration. This implies that, even though some educators are proactive, others may be behind, resulting in discrepancies in AI adoption and instructors' confidence. This corroborates Hsu's (2016) assertion that the effective use of technology in education can be impeded by inconsistent support. At the macro level, policies that allocate funding for AI training and technological enhancements can alleviate anxiety and increase the confidence of educators. This discovery is consistent with the research conducted by Ertmer and Ottenbreit-Leftwich (2010), which underscored the significance of policy support in adopting technology. Additionally, cultural factors and societal attitudes are significant. Adopting new tools can be encouraged and anxiety can be reduced by positive societal attitudes towards technology and AI in education. This is in accordance with the research conducted by Venkatesh et al. (2003), which determined that technology adoption is significantly influenced by social influence. Nevertheless, the rapid advancement of AI technology is accompanied by a combination of apprehension and satisfaction. This observation is consistent with Lan's (2024) prior research, which underscored the difficulties associated with adapting to technological advancements in education. Furthermore, the absence of adequate support emphasizes the necessity of comprehensive professional development and systemic support, which is by the findings of Shernoff et al. (2016).

Pedagogical Implication

The investigation's findings relating to the integration of AI-driven educational tools have numerous pedagogical implications, emphasizing the transformative potential of AI tools in education while acknowledging the obstacles and prerequisites for their successful implementation. The integration of AI tools into the instruction of English language skills (microsystem) has the potential to improve the teaching experience significantly. By providing interactive, personalized, and gamified learning experiences, these tools facilitate the development of fundamental English language skills, including listening, speaking, reading, and writing. Educators are encouraged to integrate AI tools, including Pigai Net, Google Assistant, ELSA Speak and Quizlet, to establish more engaging and effective language learning environments. The research posits that educators must profoundly comprehend the most effective methods for integrating technology to improve pedagogical approaches. This encompasses acknowledging the potential of AI tools to enhance peer collaboration, self-reflection, and content interaction. Teachers should be assisted in developing this integrated knowledge through professional development, enabling them to incorporate AI as a central element of their teaching strategies. The study underscores the significance of interactive AI tools in enhancing student engagement and motivation. Educators should receive training on implementing these features to optimize pupil engagement, particularly in digital learning environments. AI tools are essential for the real-time correction of misunderstandings and the maintenance of students' progress, as they provide immediate feedback. This attribute improves the efficacy of instruction and instills greater confidence in students. It has been demonstrated that educational outcomes are enhanced when teachers are encouraged to utilize AI tools that offer immediate feedback. This training should also emphasize the importance of interpreting and responding to the input provided by AI to further improve the teaching efficacy.

The research also identifies potential obstacles, including classroom administration issues resulting from AI-related distractions. This suggests that a balanced incorporation of AI tools is necessary, with their use being meticulously monitored to prevent them from becoming a source of distraction. Educators should be advised to establish clear boundaries for using AI tools in the classroom and to integrate these tools in a manner that complements, rather than disrupts, traditional teaching methods. The reduction in direct human interaction between educators and students is a cause for concern despite the benefits of AI in managing

repetitive tasks and facilitating learning. This underscores the significance of preserving a human element in education. Educators should strive to balance the use of AI and personal interaction, ensuring that technology enhances rather than supplants the fundamental human components of teaching.

Institutional support, which encompasses ongoing technical assistance, training sessions, and seminars, is essential for the successful integration of AI tools. Schools and educational institutions should prioritize professional development in AI tools to reduce teacher anxiety and foster confidence in their use. Furthermore, policymakers should contemplate the provision of funding and resources to guarantee that AI technologies are accessible to all students in all educational settings. Successfully navigating the rapid evolution of technology: Finally, the accelerated development of AI technology presents both opportunities and challenges. To effectively incorporate new tools and approaches, educators and institutions must remain informed about these changes. This necessitates a flexible approach to curriculum design and continuous professional development to guarantee that educational practices adapt to technological advancements.

Limitation and Conclusion

The ecological theory by Bronfenbrenner (1979) guided the investigation of the educator's experience based on the use of AI in English language learning. The findings demonstrated the benefits, challenges, and concerns of using AI tools in English language learning. According to educators, AI tools enable students to enhance their English language skills by practicing their language skills in an interactive, personalized environment. Nevertheless, it is imperative to address potential issues, such as the impact of training and professional development on language education.

The present study outlines specific limitations that provide direction for future research endeavors. The primary focus of this investigation was educators from China. Consequently, it is recommended that future research incorporate participants from various geographical locations to improve the relevance of the results. Ecological theory was selected as the theoretical framework for the analysis of educators' experiences. It is suggested that future students consider other theories to experience; such theories will contribute to expanding our understanding of the factors that influence the adoption and utilization of AI tools in English language learning.

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APPENDIX A

1. How does the presence of an AI tools impact your English language teaching?

2. How comfortable are you with integrating AI tools into your daily teaching practices? Detail your answers with examples

3. How does your school's administration support you in using AI tools in English language teaching?

4. What kind of training or professional development have you received related to AI tools for English language learning?

5. What is the national or state-level educational policies regarding AI integration in English language classrooms? Elaborate with examples?

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