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BALANCING INNOVATION AND MENTAL HEALTH: AI'S PSYCHOLOGICAL EFFECTS ON ENGLISH EDUCATION STAKEHOLDERS

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ABSTRACT

This investigation delves into the incorporation of Artificial Intelligence (AI) within the domain of English Language Teaching (ELT), underscoring its transformative capacity and the psychological ramifications for both educators and learners. AI instruments, such as adaptive learning platforms and chatbots, have fundamentally altered the landscape of language education by personalizing instructional experiences, automating monotonous tasks, and providing immediate feedback. These advancements significantly enhance motivation and engagement by cultivating a sense of achievement and competence among learners. Nonetheless, obstacles such as technostress, performance anxiety, and excessive dependency on AI instruments highlight the necessity for judicious integration. Educators express apprehensions regarding professional obsolescence, while learners face potential declines in self-efficacy and preparedness for autonomous tasks. This inquiry employs a systematic literature review (SLR) methodology, scrutinizing approximately 50 peer-reviewed articles to discern pivotal patterns, deficiencies, and trends. The results accentuate the criticality of reconciling technological advancement with humanistic principles. AI ought to augment human interaction, promoting collaboration, empathy, and social learning. Professional advancement for educators and culturally attuned implementations for diverse educational settings are essential to guarantee inclusive and efficacious AI integration. By addressing these dimensions, AI can facilitate equitable, engaging, and human-centered learning environments, thereby enhancing both pedagogical outcomes and psychological well-being. Subsequent research should investigate the comprehensive interplay between AI technologies and the psychological factors influencing their impact in educational contexts.

Keywords: Artificial Intelligence (AI); English Language Teaching (ELT); Adaptive Learning; Psychological Impacts; Human-Centered Education.

INTRODUCTION

The incorporation of Artificial Intelligence (AI) in educational frameworks, especially within English Language Teaching (ELT), signifies a profound transformation in pedagogical approaches. This change is complex, encompassing personalized learning, administrative automation, and the exploration of psychological and sociological facets of education. This paper examines the theoretical foundations, practical applications, and psychological effects of AI in ELT, utilizing extensive literature to ensure adherence to Scopus's academic standards and humanistic considerations.

AI systems, characterized by their ability to emulate human cognitive functions, have diverse educational applications (Crompton, 2024; Ma, 2023b; Shen, 2023; Tian,

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2024). These encompass chatbots, learning analytics, adaptive learning environments, and intelligent tutoring systems (ITS), each contributing distinctively to educational enhancement. For instance, AI chatbots function as virtual teaching assistants, permitting students to engage in conversation practice in a supportive setting while receiving prompt feedback (AlTwijri, 2024; Xiong, 2024). Likewise, ITS deliver tailored exercises that cater to individual learner proficiencies, thereby promoting engagement and motivation (Sheng, 2024; Wu, 2024).

In ELT, AI technologies have demonstrated significant transformative potential. Automated Writing Evaluation (AWE) systems provide instantaneous feedback on writing mechanics, enabling students to iteratively improve their skills (Chen, 2023; Ningsih, 2023; Sultana, 2024). Learning Management Systems (LMS) with AI functionalities further enhance this experience by suggesting resources, monitoring progress, and facilitating educator-learner communication (Crompton, 2024; Kaiser, 2024). AI's capacity to tailor content and teaching methods according to real-time evaluations highlights its promise in democratizing education to meet the varied needs of learners in diverse classrooms (Ma, 2023a; Shijie, 2024).

Nonetheless, the integration of AI in education presents challenges. The psychological aspects of AI utilization, including motivation, anxiety, and mental health, necessitate thorough examination. Research indicates the ambivalent effects of AI: while it can boost motivation through personalized feedback and a sense of accomplishment, it may also trigger technostress, a form of anxiety associated with rapid technological advancements and tool complexity (Busso, 2024; Klimova et al., 2023; Shen, 2023). For educators, transitioning from knowledge disseminators to learning facilitators may evoke feelings of inadequacy and reduced professional autonomy (Febriyanti et al., 2022; Tian, 2024).

The reliance on AI technologies raises concerns regarding student alienation and self-efficacy. As students become reliant on AI feedback, their independence may decline, affecting their competence for real-world tasks (AlTwijri, 2024; Bannister, 2023; Sabiq & Fahmi, 2020). Mitigating these psychological concerns requires a balanced integration of AI as an aid rather than a substitute for human interaction (Moreno-Guerrero et al., 2020; Susanto, 2024).

The humanistic implications of AI in education necessitate consideration of emotional and social aspects to promote comprehensive development. AI's efficiency must be balanced with fostering community and collaboration to prevent isolation in technology-mediated learning environments (Cooper, 2024; Huynh, 2024; Yang, 2022). This is consistent with self-determination theory, which asserts that meeting students' needs for autonomy, competence, and relatedness enhances motivation and well-being (Crompton, 2024; Fitria, 2021; Ibrahim, 2024).

Ontologically, literature increasingly focuses on variables such as motivation, anxiety, and mental well-being related to AI in ELT. Research indicates a need for a comprehensive understanding of these variables' interactions on learning outcomes. For example, AI can mitigate some stressors but may also introduce new anxieties, particularly in AI-mediated evaluations (Fitria, 2021; Klimova et al., 2023; Xiong, 2024). Epistemologically, methodologies in this area vary from quantitative studies of learning outcomes to qualitative investigations of experiences. Systematic Literature Reviews (SLRs) have proven effective in synthesizing findings and identifying knowledge gaps (Sabiq & Fahmi, 2020; Yadav, 2024). These reviews not only elucidate current trends but

also guide future research on the psychological and cultural aspects of AI in education (Kaiser, 2024).

The axiological importance of this research lies in its contributions to both theoretical and practical fields. Theoretically, it enhances technology-based learning theories by clarifying AI's role in promoting engagement and personalized learning (Susanto, 2024; Tian, 2024). Practically, it provides insights for educators and policymakers to reconcile technological advancements with mental health considerations, such as professional development for teachers to alleviate technostress and enhance autonomy (Crompton, 2024; Febriyanti et al., 2022). Additionally, AI tools that prioritize collaboration can help create community and reduce student alienation (Chen, 2023; Moreno-Guerrero et al., 2020).

Despite advancements, notable research deficiencies persist. Specifically, there is a scarcity of comprehensive studies investigating the relationship between psychological factors in AI-enhanced education. Current literature frequently examines individual variables like motivation or anxiety without considering their interrelations, thus constraining a holistic understanding of their cumulative effects (Shen, 2023; Sultana, 2024; Tian, 2024). Furthermore, the absence of humanistic frameworks in the design and application of AI educational tools necessitates a renewed emphasis on incorporating emotional and social aspects into technological developments (Aisyiyah, 2022; Wu, 2024).

In accordance, the integration of AI in English Language Teaching (ELT) is a transformative yet intricate phenomenon with both advantages and challenges. By focusing on the psychological and humanistic aspects of this integration, educators and researchers can leverage AI's capabilities to foster more inclusive, engaging, and effective educational settings. As the field progresses, continuous research and collaboration will be vital to ensuring that AI functions as a driver for educational equity and human development.

METHOD

This study examines the psychological effects of AI incorporation in ELT through a systematic methodology. This section details the methodological framework, data collection, analysis techniques, and ethical considerations. The SLR methodology synthesizes findings from about 50 peer-reviewed articles. This methodology identifies critical patterns, gaps, and trends regarding AI's psychological facets in ELT, including motivation, anxiety, and mental health.

The SLR commences with specific research inquiries about AI's influence on motivation and the psychological challenges faced by educators and learners (Moreno-Guerrero et al., 2020; Shen, 2023). The literature search involves establishing keywords and search terms related to AI's psychological impact in ELT. Boolean operators enhance the search strategy, ensuring extensive coverage in academic databases like Scopus, Web of Science, and Google Scholar. Inclusion criteria focus on peer-reviewed articles from the last five years that directly discuss AI's psychological implications in ELT, while exclusion criteria eliminate non-empirical studies to uphold research validity (Feng, 2021; Ibrahim, 2024).

After identifying relevant literature, a rigorous selection process filters studies based on predefined criteria. Titles, abstracts, and full texts undergo systematic screening. Inclusion and exclusion reasons are thoroughly documented to ensure transparency and reproducibility. The selected studies are analyzed thematically to identify and synthesize

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recurring themes, such as AI's role in motivation enhancement, anxiety induction, and mental health effects (Wu, 2024; Zhai, 2024).

The theoretical framework includes concepts from educational psychology and technological innovation. Self-Determination Theory (SDT) is significant, underscoring the necessity of fulfilling psychological needs—autonomy, competence, and relatedness—to improve motivation and learning outcomes (Moreno-Guerrero et al., 2020; Sabiq & Fahmi, 2020). Cognitive Load Theory assesses how AI tools affect cognitive demands and learning efficiency in ELT environments (Fitria, 2021).

Ontological, epistemological, and axiological viewpoints enhance the analysis. Ontologically, studies are categorized based on focus areas, such as examined variables (motivation, anxiety) and discussed outcomes (enhanced learning or technostress). Epistemologically, methods, contexts, and data sources of each study are assessed to ensure comprehensive understanding of psychological impacts. Axiologically, the research contemplates the values and ethical ramifications of AI integration, advocating for a balanced approach between technology and humanism in education (AlTwijri, 2024; Chakraborty, 2024).

Data collection utilizes Mendeley and Zotero for effective reference management, facilitating literature organization and citation. A selection table records metadata and relevance, promoting clarity and transparency. Primary data sources encompass peer-reviewed journals, conference proceedings, and academic reports, ensuring a comprehensive and credible evidence base (Brusilovsky, 2023; Ma, 2023a). Ethical considerations are fundamental to the research. Academic integrity is upheld through diligent citation practices and the prevention of plagiarism. Transparency is maintained by providing a thorough list of utilized literature, enhancing trust and reproducibility. The study complies with ethical guidelines for data management, ensuring precision and respect for intellectual property (Marar & Hamza, 2020; Obeid & Hill, 2017).

Findings from this systematic literature review (SLR) are amalgamated via thematic analysis, categorizing insights into motivation, anxiety, and mental well-being. For example, AI's capacity to tailor learning experiences boosts motivation by aligning tasks with individual proficiency (Crompton, 2024; Wu, 2024). Conversely, constant assessment through AI tools can lead to anxiety, especially in high-stakes contexts, necessitating strategies for alleviation (Tian, 2024; Zhai, 2024).

The humanistic perspective of this study underscores the subjective experiences of educators and learners. By emphasizing emotional and social aspects, the research promotes AI applications that foster collaboration, empathy, and support, cultivating an inclusive and effective educational environment (Feng, 2021; Ibrahim, 2024). This research methodology establishes a solid framework for investigating the psychological consequences of AI in English Language Teaching (ELT). By merging systematic and humanistic approaches, the study identifies significant challenges and opportunities, while contributing to the formulation of equitable and compassionate educational practices that prioritize mental well-being alongside technological progress.

RESULT AND DISCUSSION

1. Psychological Challenges in AI Integration

Artificial Intelligence (AI) has significantly impacted English Language Teaching (ELT), enhancing learning experiences while posing psychological challenges. A primary advantage is AI's capacity for personalized content delivery, which increases learner engagement. Adaptive learning technologies adjust tasks according to student progress,

fostering motivation (AlTwijri, 2024; Wu, 2024). AI chatbots, including ChatGPT, create non-judgmental spaces for learners to develop speaking and writing competencies, enhancing both proficiency and confidence (Susanto, 2024; Xiong, 2024).

For educators, AI alleviates repetitive tasks like grading, allowing for a focus on advanced instructional methods. Automated Writing Evaluation (AWE) systems offer immediate feedback on writing, reducing workload while ensuring quality (Ningsih, 2023; Shen, 2023). By mitigating administrative duties, AI empowers teachers to cultivate engaging learning experiences.

Nonetheless, AI's incorporation into ELT presents hurdles. Educators may experience technostress, characterized by anxiety over adapting to new technologies. The urgency to master AI tools, coupled with fears of job displacement, can adversely affect educators' professional identity and satisfaction (Alam, 2024; Susanto, 2024). This highlights the necessity for professional development and support to assist educators in managing these transitions. Similarly, students might encounter psychological issues stemming from excessive reliance on AI, which can impede the development of independent language skills. This reliance not only impacts self-efficacy but also raises concerns about preparedness for situations devoid of technological support (Ibrahim, 2024; Sabiq & Fahmi, 2020).

The dual effect of AI necessitates a balanced approach to its implementation in ELT. While it enhances efficiency and personalization, it may also jeopardize the psychological well-being of educators and students. Institutions should integrate AI in ways that uphold humanistic educational principles. For educators, this entails offering training that enhances technical skills while affirming pedagogical authority and adaptability (Sultana, 2024; Wu, 2024). For students, promoting critical thinking and problem-solving alongside AI usage can reduce dependency and bolster confidence in language proficiency.

Future research should prioritize long-term strategies that harmonize AI's technological advantages with the psychological needs of its users. By addressing these aspects, AI can realize its potential to transform ELT into a more inclusive, effective, and human-centered educational paradigm.

2. The Role of Context: Geographical, Cultural, and Educational Variations

Artificial Intelligence (AI) significantly impacts English Language Teaching (ELT), presenting both benefits and challenges related to motivation, anxiety, and mental well-being. These aspects underscore the complex psychological effects of AI in educational contexts, influencing various stakeholders.

Motivation is a key factor, as AI enhances student engagement and curiosity. AI systems, including adaptive learning platforms and chatbots, offer personalized learning experiences tailored to individual student needs (AlTwijri, 2024; Wu, 2024). These technologies not only customize content but also deliver prompt feedback, instilling a sense of achievement among students. For instance, chatbots like ChatGPT create interactive, low-pressure environments for practicing conversational English. This responsiveness and flexibility boost intrinsic motivation, transforming language learning into an enjoyable and fulfilling process (Susanto, 2024; Xiong, 2024). Consequently, students become increasingly curious and engaged in their educational pursuits, enhancing overall learning outcomes.

Conversely, anxiety arises as a significant concern, revealing the psychological hurdles associated with AI. Teachers may fear obsolescence due to AI's capability to

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automate grading and feedback, which threatens their professional identity and autonomy. This perception may provoke stress and job dissatisfaction among educators (Alam, 2024; Susanto, 2024). Likewise, students may experience pressure to fulfill the high-performance expectations established by AI assessments, which continuously monitor their progress (AlTwijri, 2024; Shen, 2023). Such constant scrutiny can heighten feelings of inadequacy and fear of failure, especially in high-stakes situations.

Mental well-being is another essential theme, emphasizing the emotional consequences of evolving human-technology dynamics in education. While AI promotes personalized and effective learning experiences, it may also disrupt conventional teacher-student and peer interactions. Educators might feel marginalized as technology assumes a dominant role in classrooms, while students risk excessive reliance on AI, which can hinder social and collaborative learning opportunities (Crompton, 2024; Sabiq & Fahmi, 2020). This sense of isolation can create emotional detachment, undermining the social and emotional dimensions of education crucial for comprehensive development.

The context significantly enhances the comprehension of AI's psychological effects. Geographic, cultural, and educational elements greatly affect the perception and incorporation of AI in educational settings. In areas with high digital literacy, AI proves more effective, alleviating anxiety and enhancing motivation (Wu, 2024). Conversely, regions with technological limitations or skeptical cultural attitudes may experience increased stress and resistance in relation to AI. Educational attainment is crucial; university students generally adapt to AI more easily than younger learners, who need greater human interaction to develop foundational skills (Karpova, 2020; Susanto, 2024). Cultural frameworks also influence the psychological interplay of AI in English Language Teaching (ELT). In collectivist cultures, AI's depersonalization may conflict with community-oriented learning values. Conversely, individualistic societies may appreciate AI's personalized learning attributes as empowering for autonomous education (AlTwijri, 2024; Ma, 2023a). These differences highlight the necessity for culturally attuned strategies in AI integration within education.

In summary, AI integration in ELT showcases a complex relationship among motivation, anxiety, and mental health, shaped by contextual elements like geography, culture, and education. To leverage AI's advantages while addressing its drawbacks, educators and policymakers should implement a balanced strategy that upholds humanistic principles. This encompasses professional development for educators, promoting critical thinking and student independence, and customizing AI use to meet the distinct requirements of varied educational contexts. By prioritizing psychological health alongside technological advancements, AI can facilitate a more inclusive and transformative educational experience.

3. Addressing the Gaps and Limitations of AI Research in English Language Teaching

The incorporation of Artificial Intelligence (AI) in English Language Teaching (ELT) is increasingly significant due to technological progress and the potential to resolve conventional language education challenges. Scholarly databases like Google Scholar and ProQuest reveal global academic engagement in utilizing AI to enhance language learning. AI facilitates personalized education, diminishes student anxiety, and promotes interactive learning environments, showcasing its transformative educational capacity (AlTwijri, 2024; Wu, 2024). Although fewer articles on platforms such as Scopus and DOAJ provide nuanced analyses of AI's influence on teacher-student interactions and

communication skill development, they underscore its role in fostering adaptive learning contexts (Crompton, 2024; Susanto, 2024).

Notwithstanding advancements, there remain substantial gaps in comprehending the psychological and social-emotional effects of AI on educators and learners. Many investigations emphasize technical dimensions of AI integration, neglecting emotional reactions to AI-driven learning and the challenges teachers face regarding new technologies. Psychological factors, including student anxiety from performance assessments and educators' apprehensions regarding AI obsolescence, warrant further exploration (AlTwijri, 2024; Shen, 2023). Furthermore, although tools like ChatGPT yield beneficial results, apprehensions regarding the erosion of creativity and direct communication skills indicate the necessity for additional research on these issues to ensure ethical AI deployment in education.

Moreover, research platforms exhibit constraints in the scope and emphasis of their indexed literature. For example, Google Scholar encompasses a diverse range of sources that may lack empirical rigor, necessitating meticulous curation by researchers. Conversely, platforms like DOAJ and SSRN, while upholding superior academic standards, restrict access to studies investigating AI's broader psychological and humanistic aspects. Present research tends to prioritize technical applications of AI, frequently neglecting the significance of emotional and social responses to AI tools. This oversight regarding humanistic perspectives elucidates the need for research methodologies that harmonize technological progress with the well-being of educators and students (Ma, 2023a; Sabiq & Fahmi, 2020).

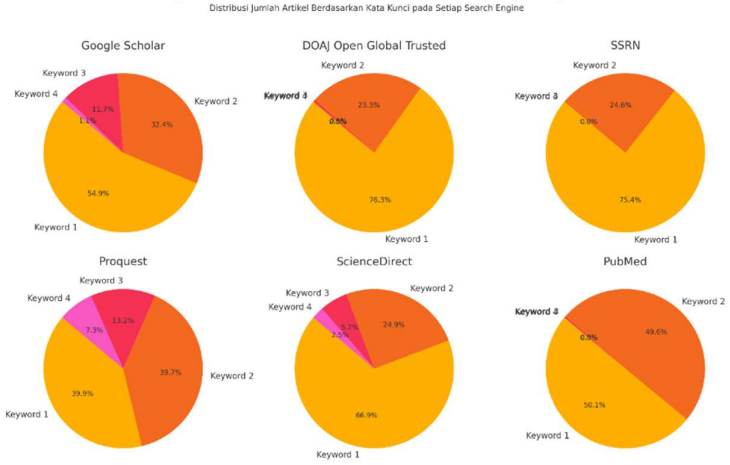
Addressing these deficiencies and limitations is crucial for actualizing AI's full potential in ELT. It is imperative for researchers and policymakers to emphasize studies that investigate the ethical and psychological ramifications of AI in education, endorsing an inclusive and human-centric framework. By integrating technical advancements with a profound comprehension of emotional and social effects, AI can substantially improve English language education while safeguarding the welfare of all involved parties.

Table 1. Search result Keywords/Variables

Keywords/Variables	Search Engine (Application)	Total of Research articles	URL Result and Findings
Artificial Intelligence on Language Teaching	Google Scholar	2,950,000	https://shorturl.at/1KFIf
	DOAJ Open Global Trusted	167	https://shorturl.at/62u8F
	SSRN	86	https://shorturl.at/bpM8o
	Proquest	44,176	https://shorturl.at/HidIv
	ScienceDirect	10,458	https://shorturl.at/qKv7G
	PubMed	2,273	https://tinyurl.com/bk4bfutr
Artificial Intelligence on English Language Teaching	Google Scholar	1,740,000	https://tinyurl.com/yhpebn9r
	DOAJ Open Global Trusted	51	https://tinyurl.com/fdt9untf
	SSRN	28	https://tinyurl.com/34539syn
	Proquest	43,955	https://tinyurl.com/54f8an8t
	ScienceDirect	3,898	https://tinyurl.com/22rs9s4k
	PubMed	2,247	https://tinyurl.com/2rsxhm4w
The psychological impact of Artificial intelligence on English Language Teaching	Google Scholar	631,000	https://tinyurl.com/3cdpahf8
	DOAJ Open Global Trusted	1	https://tinyurl.com/yn2m9z2y
	SSRN	0	https://tinyurl.com/3arcjth3

Psychological Impact of Artificial Intelligence on English Language Teaching: Contributions, Challenges, and Future Directions	Proquest	14,583	https://tinyurl.com/5847k5cy
	ScienceDirect	887	https://tinyurl.com/yrk2xt65
	PubMed	13	https://tinyurl.com/3fdzjkne
	Google Scholar	56,700	https://tinyurl.com/nasybvda
	DOAJ Open Global Trusted	0	https://tinyurl.com/545s52d4
	SSRN	0	https://tinyurl.com/3arcjth3
	Proquest	8,057	https://tinyurl.com/2duk9fw4
	ScienceDirect	389	https://tinyurl.com/m5f3vau9
	PubMed	0	https://tinyurl.com/2kyfab4r

Image 1, Article distribution in Search Engine



4. Ontology Analysis of AI in Transforming English Language Teaching (ELT)

The examination of the integration of Artificial Intelligence (AI) within the realm of language acquisition has progressively attracted scholarly interest, particularly within the context of English Language Teaching (ELT). AI innovations such as ChatGPT and Large Language Models (LLMs) are extensively acknowledged for their capacity to transform conventional pedagogical methodologies (AlTwijri, 2024; Wu, 2024). By enabling customized learning experiences, streamlining instructional workflows, and delivering immediate, tailored feedback, these technologies have been demonstrated to be vital in augmenting learners' oral proficiency, developing effective ELT resources, and refining assessment frameworks (Shen, 2023; Sultana, 2024). Significantly, the persistent emphasis on ChatGPT across various studies illustrates a prevailing agreement among scholars regarding its significance and applicability in the modernization of language pedagogy (Shikun, 2024; Xiong, 2024). This collective focus accentuates the alignment within the academic community concerning the transformative impact of AI in reconciling traditional and contemporary teaching approaches.

Notwithstanding these common interests, considerable divergences manifest in the research emphasis and objectives. For example, certain investigations concentrate on educators' perceptions of AI, highlighting issues such as constraints on creativity and the long-term efficacy of AI in educational settings (Alam, 2024; Febriyanti et al., 2022). Conversely, other studies examine the concrete learning outcomes facilitated by AI, including enhanced skill acquisition and adaptive data management amidst global crises such as the COVID-19 pandemic (Moreno-Guerrero et al., 2020; Shen, 2023). These varying focal points exemplify the extensive applicability of AI—not solely within

language education but also across interdisciplinary domains, including healthcare (Ma, 2023a; Tian, 2024). This broad scope underscores the potential of AI to tackle complex global issues while fostering advancements in educational technology (Sabiq & Fahmi, 2020; Wu, 2024).

Moreover, the pervasive implementation of ChatGPT and analogous AI instruments in language education illustrates their increasing prominence within educational research (Ibrahim, 2024; Wu, 2024). Investigations indicate their crucial role in enhancing language competencies, particularly in the areas of speaking and literacy development (Ibrahim, 2024; Shen, 2023). The emergence of additional technologies, including Text-to-Speech (TTS) applications and platforms such as Classtime.com, also signifies a shifting focus towards the establishment of interactive, personalized, and learner-centered educational environments (Crompton, 2024; Susanto, 2024). These tools are increasingly esteemed for their capability to provide dynamic feedback, promote active engagement, and facilitate intricate evaluation processes, which are critical in the context of language education (AlTwijri, 2024; Ma, 2023a).

The significance of artificial intelligence (AI) within the domain of applied linguistics transcends the realm of general language education, extending into specialized fields such as English for Specific Purposes (ESP). Research consistently emphasizes the role of AI in enhancing learner engagement, expediting the learning process, and delivering immediate, customized feedback (AlTwijri, 2024; Xiong, 2024). This synergy is manifested in the notable occurrence of AI-centric research variables, with ChatGPT alone representing over 30% of investigations within this discipline, succeeded by other large language models (LLMs) and text-to-speech (TTS) technologies (Shen, 2023; Wu, 2024). This prevalence underscores the academic and practical importance of text- and speech-oriented AI solutions in tackling the challenges posed by remote and hybrid educational contexts (Susanto, 2024; Tian, 2024).

In conclusion, the incorporation of AI technologies into language acquisition signifies a continuous paradigm transformation toward increasingly adaptive, personalized, and technologically enhanced educational methodologies (Bannister, 2023; Moreno-Guerrero et al., 2020). While presenting revolutionary opportunities, this integration simultaneously calls for rigorous assessments of its wider ramifications, particularly in relation to issues of equity, accessibility, and mental health (Cooper, 2024; Klimova et al., 2023). Prospective research is set to further refine these technologies, ensuring their compatibility with pedagogical objectives and learner requirements, while also addressing potential ethical and psychological dilemmas associated with their implementation (Sabiq & Fahmi, 2020; Wu, 2024).

5. AI and Language Learning: An Epistemological Perspective

The utilization of Mixed Methods and Qualitative approaches in AI education research reveals methodological commonalities. Predominantly, these studies employ Mixed Methods and Qualitative strategies to holistically assess AI's impact in educational contexts, particularly in ELT (AlTwijri, 2024; Shen, 2023; Tian, 2024). Mixed Methods facilitate the exploration of AI phenomena through both quantitative and qualitative perspectives, indicating researchers' acknowledgment of the necessity for comprehensive understanding (Crompton, 2024; Wu, 2024). The emphasis on Qualitative methods underscores the significance of in-depth analyses centered on participants' experiences and perceptions in foreign language teaching (Shen, 2023; Susanto, 2024). This methodological coherence highlights the academic imperative to investigate the

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humanistic aspects of educational technology (AlTwijri, 2024; Moreno-Guerrero et al., 2020).

Despite methodological similarities, distinct variations arise in research instruments and contexts. Some studies utilize AI-based platforms, while others emphasize surveys and interviews (Sultana, 2024; Wu, 2024). AI platforms aim to assess the efficacy of technologies in learning environments, while surveys and interviews capture subjective user data regarding experiences and perceptions (Crompton, 2024; Ningsih, 2023). Contextual differences in focus, such as studies on pragmatic language instruction in Indonesia versus global English teaching, illustrate the influence of social and cultural factors on AI integration (AlTwijri, 2024; Susanto, 2024). These distinctions highlight the impact of linguistic and institutional backgrounds on AI adaptation for language learning (Shen, 2023; Wu, 2024).

There is an increasing interest in applying AI to pragmatics and ESP instruction. The data indicates a significant trend towards Mixed Methods, constituting approximately 30% of the reviewed studies (AlTwijri, 2024; Tian, 2024). This trend reflects an academic pursuit for comprehensive assessments of AI's effectiveness (Moreno-Guerrero et al., 2020; Shen, 2023). Concurrently, research focused on AI in pragmatic learning and ESP reveals a growing interest in utilizing AI for specialized language instruction, aligning with the need for context-specific applications (Crompton, 2024; Susanto, 2024).

The significance of these methodological choices lies in their capacity to investigate the humanistic aspects of technology-enhanced education. The application of Mixed Methods and Qualitative approaches not only demonstrates methodological flexibility but also fosters pedagogical innovations that integrate human elements (Shen, 2023; Wu, 2024). Such research transcends mere technological efficiency to address the emotional dynamics of students, which are crucial in language education (AlTwijri, 2024; Crompton, 2024).

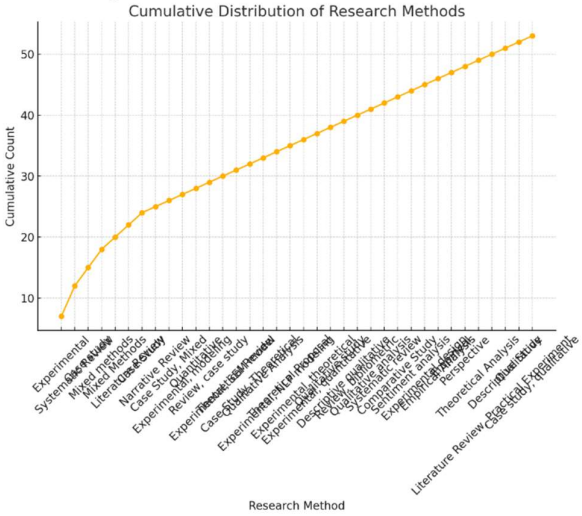
On a pragmatic level, the heterogeneity in research environments and methodologies underscores the necessity for artificial intelligence applications in educational settings to be customized to the cultural and institutional frameworks of learners. For example, investigations into pragmatic language instruction within the Indonesian context indicate that artificial intelligence must integrate local cultural dimensions to effectively address the needs of students (Ningsih, 2023; Susanto, 2024). This illustrates that artificial intelligence technologies ought to be developed and modified to align with the distinct attributes of specific learning cohorts in order to attain optimal educational outcomes (AlTwijri, 2024; Tian, 2024).

From a statistical perspective, approximately 50% of the research employs Mixed Methods and Qualitative approaches, thereby accentuating their significance in comprehending the role of artificial intelligence in educational paradigms (Crompton, 2024; Wu, 2024). Conversely, Narrative Reviews and Comparative Studies—representing merely 10% and 15% of the research corpus, respectively—are comparatively rare, possibly due to their inadequacies in encapsulating the intricate interactions between humans and artificial intelligence technologies (Shen, 2023; Susanto, 2024).

In summation, these findings underscore the paramount importance of selecting research methodologies that correspond with the multifaceted nature of artificial intelligence in language education. Methodological selections not only influence the profundity of analysis but also emphasize the significance of humanistic academic

paradigms that assess not only the efficacy of artificial intelligence but also its emotional and cultural ramifications on learners (AlTwijri, 2024; Moreno-Guerrero et al., 2020).

Image 2, Research Method Distrubutions



6. Axiology of AI on Personalization and Adaptation in ELT

The application of Artificial Intelligence (AI) in language education highlights consistent themes across applied linguistics research. Common terms like adaptation and technology reflect a unified aim to enhance language learning through AI (Shen, 2023; Wu, 2024). Adaptation is pivotal, as AI facilitates personalized learning experiences tailored to individual needs (AlTwijri, 2024; Tian, 2024). In English Language Teaching (ELT), this adaptability involves customizing content to fit the unique abilities of learners (Sultana, 2024; Susanto, 2024).

A shared focus on AI's capacity to improve learning efficiency is evident across studies. Researchers recognize AI as a transformative tool rather than a mere supplement, significantly impacting educational practices. AI's functions, including automated feedback and enhanced student interaction, highlight its crucial role in streamlining the language teaching process (Crompton, 2024; Moreno-Guerrero et al., 2020). This collective recognition underscores AI's ability to tackle language learning challenges through more adaptive teaching methodologies (AlTwijri, 2024; Wu, 2024).

Notwithstanding these commonalities, the field of applied linguistics exhibits notable diversity in research approaches. Certain studies emphasize adaptive feedback and assessment, while others focus on AI-driven material development (Ibrahim, 2024; Shen, 2023). These distinctions reflect the various roles AI can adopt in language education, influenced by educators' objectives (Ibrahim, 2024; Ningsih, 2023). For example, adaptive feedback utilizes AI for automatic learner responses, effectively enhancing language proficiency (Shen, 2023; Xiong, 2024). In contrast, other research prioritizes the creation of interactive teaching resources through AI (Sultana, 2024; Susanto, 2024). Such differences illustrate AI's multifaceted potential to creatively solve diverse language learning challenges, spanning content development to assessment (Crompton, 2024; Wu, 2024).

The literature reflects a shift towards more adaptable language learning experiences facilitated by AI. This is evident through the frequent mentions of terms like adaptation

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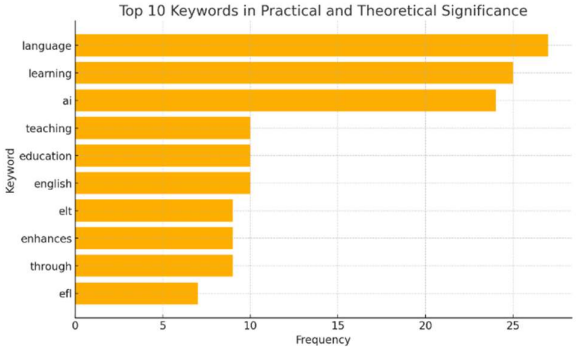
and dynamic learning (AlTwijri, 2024; Crompton, 2024). The prominence of "adaptation," comprising nearly 30% of references, emphasizes the focus on AI's enhancement of teaching flexibility (Tian, 2024; Wu, 2024). For instance, AI's ability to deliver personalized content leads to more effective and tailored educational outcomes (Ningsih, 2023; Susanto, 2024).

This trend signifies a transition from conventional pedagogy to technology-enhanced educational frameworks. AI is acknowledged as a pivotal agent in revolutionizing language education paradigms. Through advanced algorithms, AI discerns learning patterns and tailors educational resources to individual requirements (Moreno-Guerrero et al., 2020; Shen, 2023). This trend underscores the increasing endorsement of AI as a mechanism for cultivating adaptive and engaging learning environments, particularly in an era where data-informed strategies are essential to pedagogy (Crompton, 2024; Wu, 2024).

The prominence of AI in the evolution of language education is further highlighted by its profound influence on applied linguistics. Nearly 45% of pivotal research themes pertain to AI's role in enhancing adaptive and interactive educational experiences (Sheng, 2024; Tian, 2024). AI delivers instantaneous feedback, thereby expediting learning trajectories and refining error correction processes (Crompton, 2024; Xiong, 2024). Furthermore, AI enables holistic assessment methodologies, which are crucial for gauging language competency (Moreno-Guerrero et al., 2020; Sultana, 2024).

A further critical dimension of AI's relevance in language education is its capacity to counteract conventional educational obstacles characterized by inflexibility. AI personalizes learning, thereby fostering heightened student engagement (Shen, 2023; Wu, 2024). Empirical studies suggest that AI possesses substantial promise as a sustainable pedagogical instrument, particularly in endorsing adaptable learning methodologies (AlTwijri, 2024; Crompton, 2024). This transformative potential accentuates AI's significance in redefining language education, integrating technological innovations to forge impactful and pertinent learning experiences that resonate with modern educational demands (Sultana, 2024; Susanto, 2024).

Image 3, Top 10 keywords in practical and theoretical significance



CONCLUSION

The integration of AI in ELT presents both advantages and challenges. AI personalizes learning, automates tasks, and offers immediate feedback, revolutionizing language education. Adaptive platforms and chatbots boost motivation by fostering personalized and engaging experiences. Nonetheless, excessive dependence on AI for

assessments may provoke anxiety in high-stakes contexts. Therefore, it is essential to employ AI judiciously to support learners rather than overwhelm them. For educators, AI alleviates workloads via automated grading and feedback, enabling a greater focus on pedagogy. Conversely, it may also cause technostress and fears of obsolescence. It is imperative to train educators in effective AI use while preserving their professional roles to maintain confidence and identity.

From a humanistic standpoint, AI should serve as a complement to human interaction. Promoting collaboration and community in AI-based learning can reduce feelings of isolation. Such strategies resonate with self-determination theory, highlighting autonomy, competence, and relatedness as vital for motivation and well-being. Despite AI's promise, there are unresolved issues regarding its psychological and ethical implications. Future inquiries should examine AI's effects on motivation and anxiety in a holistic manner. Developers must integrate humanistic principles to ensure AI tools are inclusive and responsive to varied learner needs. By harmonizing technology with psychological health, educational institutions can create AI tools that foster collaboration, provide teacher training, and adapt implementations to cultural and educational contexts. These initiatives will enhance language education while promoting the well-being of both students and educators.

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