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Main Theme

"Designing the Future: Changing Paradigms and Transhumanism with Artificial Intelligence in Education"

Sub-Themes

- Academic freedom, autonomy, and social responsibility in education
- Artificial intelligence and educational applications
- Augmented reality applications
- Barriers to learning
- Blended learning
- Computer-assisted measurement and evaluation
- Core skill sets for students and teachers
- Design of school buildings in the future
- Designing and delivering a digital strategy
- Digital competence
- Digital parenting
- Distance Education
- Earthquake Education
- Post Earthquake Trauma Training
- Earthquake and Effective Psychosocial Intervention Methods
- Earthquake and Trauma
- The Impact of Earthquakes on School Staff
- Education and society
- Education for healthy living and healthy communities
- Education for a sustainable life
- Education in the digital age: Primary, secondary, high school, higher education, and application examples
- Educational leadership in the digital age
- Effects of regional differences on education
- Equity, Diversity, and Inclusion Related to Marginalized Groups
- Emergency Management at Schools
- Evidence-Based School Counseling Services for Refugees and Marginalized Groups
- Globalisation and Education
- Higher education
- Innovative learning designs for student success
- Instructional technologies in the digital age
- Integration of immigrants into education
- K-12 education (preschool, primary, and secondary education)
- Learning management systems
- Lifelong learning
- Machine learning
- Management information system
- Managing schools
- Measurement and evaluation of students' learning outcomes
- Metaverse
- Migration and education
- Multicultural Classroom Concerns of Educators and Parents
- New educational system after COVID-19
- New skills to live and work in new times
- New technologies in teaching and learning

- New trends in educational research
- New trends in learning and teaching methods
- New trends in research methods
- Pedagogy, educational programs, and teaching
- Politics, good governance, and leadership in the educational sector
- Program design and development
- Promoting equality, diversity, and inclusion
- Psychological counseling and guidance in education
- Quality assurance/standards and accreditation
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- Research ethics
- Right to an education
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- Teacher education in the digital age
- The Possibility of Fundamental Changes in the Curriculum
- The role of parents in education
- The skills we need to thrive in a post-COVID-19 world
- Vocational education
- Ways to overcome the digital divide

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A Review of Generative Artificial Intelligence (GENAI) Tools in Second/Foreign Language Teaching

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Abstract

Recent developments in technology have contributed to the reshaping of the practice of foreign language education. Among those, even though generative artificial intelligence (GENAI) is not a recently emerged technology, it has started to become prominent in the field of foreign language teaching. Therefore, it is possible to observe GENAI tools specially designed for foreign language education mushrooming all around the world. The utility of GENAI tools in the improvement of foreign language skills is an ever-growing research area and these apps are in line for becoming irreplaceable aspects of modern foreign language education classrooms, which is why compiling GENAI apps based on each different language skill might be helpful for foreign language practitioners to find their way in their teaching journey. In this respect, the goal of this study is to review the existing GENAI tools especially designed for teaching second and foreign languages by conducting a qualitative document analysis. Initially, the emerging role of GENAI in education has been discussed. Subsequently, the current position of GENAI tools in the field of second and foreign language teaching has been presented. The interface of some of the substantiated GENAI tools and their potential uses in language teaching are also highlighted. The findings of this review of literature reveal that existing GENAI tools can be adapted to foreign language education settings in numerous ways, signaling the significance and potential of GENAI in the field of foreign language teaching.

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Keywords: *Digitalization, Digital platforms, Foreign language education, Language learning*

Introduction

The term Artificial Intelligence (AI) has been prominent, especially in recent decades. Defined as "the ability of a digital machine to perform tasks commonly associated with intelligent beings" (Hamet & Tremblay, 2017, p. 36), the concept has become so widespread all around the world that it has turned into a subsidiary tool for people to keep up with the developments in aspects of modern life. The prevalence of artificial intelligence reveals itself in many industries without which the image of the current modern and globalized world would be incomplete.

The potential of AI in the field of education is also promising. The concept can provide learners with "personalized, interactive, and adaptive learning experiences" in accordance with their various needs and interests (Rusmiyanto et al., 2023, p. 751). Predictive and diagnostic implementations through rich visual input and appropriate feedback can be among the potential of AI in education (Luan et al., 2020). Thanks to the integration of generative artificial intelligence (GENAI) tools into education, more individualized, motivating, and productive environments can be sustained in the field of education (Alneyadi et al., 2023). This is of paramount importance in terms of increasing the quality of education. With respect to the increased demand for foreign language learning (FLL), educators and practitioners have started to discover innovative and emerging tools in foreign language education (FLE), leading to the integration of generative artificial intelligence (GENAI) tools into the field of FLE. Such an integration can foster fundamental foreign language skills through AI-based technologies including virtual tutors, chatbots, speech recognition systems, and applications that allow for language learning with interactive features (Son et al., 2023). Learners can engage in timely feedback, personalized assessment, and activities, tailored to their diverse preferences, needs, and learning styles (Wang & Liu, 2019). In this way, the process of FLL can be enhanced through AI-powered tools.

In this vein, the aim of this study is to explore the potential uses of certain GENAI tools in FLE by reviewing the recent literature and databases to contribute to foreign language practitioners' understanding of potential uses of GENAI tools in foreign language classrooms, aiming to create a map for foreign language practitioners, especially for the ones who are not sure where to start.

Theoretical Background

Developments in information and communication (ICT) technologies have given rise to the evolution of the concept of artificial intelligence over the years. Copping (2004) defines AI as "the ability of machines to adapt to new situations, deal with emerging situations, solve problems, answer questions, devise plans, and perform various other functions that require some level of intelligence typically evident in human beings (p. 4). Correspondingly, with the current technological

innovations, the growth of artificial intelligence has started to leverage the interaction and communication among people in numerous aspects of life including industrial and educational sectors (Chiu, 2021; Chiu et al., 2023; Pedro et al., 2019; Xia & Li, 2022). It can be asserted that AI has spread all over the world.

The emergence of AI-based tools and applications has started to be seen more frequently, especially after the COVID-19 pandemic. The prevalence of digitalized and remote learning environments has intensively started to be used in classrooms (Moorhouse, 2023). Accordingly, practitioners have started to put more emphasis on the potential of AI-based tools in education (Kohnke et al., 2023; Williamson & Eynon, 2020). The use of AI in education (AIEd) is defined as the implementation of AI technologies including systems that allow for smart tutoring, chatbots, and the automated assessment of all modes of digitized products that are used to foster and maximize educational gains (Chiu et al., 2023). Thanks to GENAI tools in education, students' learning can be fostered through opportunities including human-like images and audio, individualized feedback, and prompts (Lim et al., 2023). These tools can help practitioners in finding appropriate pedagogical strategies by generating input, assessment, and timely and individualized feedback (Chaudhry & Kazim, 2021). Therefore, the concept has multifunctional benefits in education.

In this regard, practitioners can use AI-based tools in education for a range of different purposes. For instance, these tools can have a diagnostic function in terms of detecting learners' strengths and weaknesses (Liu et al., 2017). Educators can evaluate student assignments, provide feedback, adapt materials, foster interactivity, automate grading, and make predictions on students' outcomes (Chiu et al., 2023). Chen et al., (2020) summarized the potential uses of AI-based products for different educational purposes through a range of techniques in the following table.

Table 1

Different Uses of AI in Educational Settings

Scenarios of AI in Education	**AI-related techniques**
Assessment of students and schools	Adaptive learning method and personalized learning approach, academic analytics
Grading and evaluation of papers and exams	Image recognition, computer-vision, prediction system
Personalized intelligent teaching	Data mining or Bayesian knowledge interference, intelligent teaching systems, learning analytics
Smart school	Face recognition, speech recognition, virtual labs, A/R, V/R, hearing and sensing technologies
Online and mobile remote education	Edge-computing, virtual personalized assistants, real-time analysis

Taken from Chen et al. (2020, p. 75268)

It can be stated that AIEd has an obvious potential to help teaching and support learning. Through GENAI tools and AI-based technologies, practitioners can benefit from the generation of adaptive assessment systems, automated and personalized feedback, smart teaching facilities tailored to learners' cognitive styles and differences, and accessible education opportunities that can be carried out anytime and anywhere (Chen et al., 2020; Harry, 2023). These factors make practitioners' job easier in education.

AI-based platforms are also prevalent in FLE. Parallelly, AI-based technologies have also started to have a broad place in the field of second/foreign language education (Pokrivčáková, 2019). By integrating generative artificial intelligence (GENAI) tools into their teaching, practitioners can have the chance to create lesson contents tailored to learners' different and unique language levels and needs (Ermağan & Ermağan, 2022). Such an implementation may yield prolific results in terms of students' learning objectives.

The integration of GENAI tools in foreign language education settings offers numerous possibilities. For instance, GENAI is very influential in terms of the improvement of four basic language skills: Speaking, listening, reading, and writing (Rusmiyanto et al., 2023). Conversational GENAI tools can have the capability of responding to users in line with their personal preferences and needs thanks to their rich human language data (Jiang, 2022). Through such GENAI tools, learners can engage in intelligent and human-like daily conversations which are full of rich and natural input and formed based on learnings and adjustments from prior experiences (Chon et al., 2021; Fryer et al., 2019; Huang et al., 2022). Their accessibility and practicality also appeal to learners since they can find a ubiquitous language assistant whenever they need it (Haristiani, 2019; Winkler & Söllner, 2018). Through personalized content and instant feedback (Kuhail et al., 2023), learners have the chance to notice the gap in their interlanguage through negotiation (Ellis, 1999) and monitoring their language output and may modify it ultimately (Mackey, 2012). Other than conversational skills, GENAI technologies have also wide coverage in the field of foreign language education. The advantages of GENAI in FLE are summarized by de la Vall and Araya (2023) in the following table.

Table 2

Advantages of GENAI Tools in FLE

Advantages of GENAI tools in FLE	Features & Functions
Efficiency and speed of learning	Automated specific tasks (Xie et al., 2019), immediate feedback
Personalized learning experiences	Materials tailored to learners' learning styles, pace, and progress (Kessler, 2018).
Ability to learn multiple languages simultaneously	Useful for those who want to expand their language skills for professional or personal reasons.
Accessibility	Easy accessibility from any device with an internet connection, allowing learners to study at their convenience and from any location.
Cost-effectiveness	Free or low-cost options
Cultural exposure	Interactive lessons and real-life scenarios & introduction to different cultural elements such as customs, traditions, and social norms & appreciation of other cultures

Taken from (de la Vall & Araya, 2022, p. 7571-7572

Teachers can offer their students a genuinely life-changing language learning experience to their students. GENAI helps them reach their full potential (Yunina, 2023). In summary, it can be asserted that GENAI tools can be used for various purposes in foreign language education.

Method

Research Design

This study adopts a qualitative research design based on a qualitative document analysis. Certain GENAI tools were personally reached and tried by the researchers and their adaptation to FLE settings was evaluated and presented. Creating a practical list of certain GENAI tools which have several potential to be used in foreign language education classrooms for practitioners was the aim of the study. Based on this, the following research questions have been formulated:

For which purposes AI-based tools can be utilized in educational settings?

What are some GENAI tools that can be used for specific purposes in foreign language education settings?

Research Sample

Within the scope of the current study, four different AI-based platforms (i.e., Eduaide.ai, Magicschool.ai, Monic AI, and TeacherMatic) were reached that can have potential benefits to be used in general education. As for the GENAI tools that can be adapted into FLE settings, 14 different AI-based platforms (i.e., ChatGPT, Talkpal AI, Gliglish, Univerbal.app, Leyaai.com, Loora.ai, Elsaspeak.com, Langotalk.org, Ryter.me, Languagereactor.com, Suno, Craiyon, Character.ai, and Quickdraw) have been investigated in detail.

Research Instrument and Procedure

In the first place, the existing body of literature was reviewed by searching databases to propound the current situation of the place of GENAI tools in the field of foreign language education. Then, through search engines, certain GENAI tools were attained and investigated and their potential utility in FLE classes was reported by the researchers.

Data Analysis

A qualitative document analysis has been conducted within the context of the current study. Such an analysis is based on the analysis of written materials containing information about the case or cases that are aimed to be investigated" (Yıldırım & Şimşek, 2018, p. 189). In this regard, the potential implementation of the investigated GENAI tools was reported by the researchers.

Findings

AI-based Tools for Practitioners to Use in General Education

There are a bunch of different AI-based tools that can be utilized in educational settings. Among those tools, "*Eduaide.ai*", "*Magicschool.ai*", "*Monic AI*" and "*TeacherMatic*" have been tried, examined, and evaluated within the framework of the current study. It has been found out that practitioners can use these tools for different pedagogical purposes including creating lesson plans, interactive activities, personalized teaching materials, promoting individualized ways of teaching, and making evaluations.

These platforms present facilities that automate the process of lesson planning. Practitioners can create teaching materials adapted to different grade levels and for a range of educational disciplines and plan their teaching more effectively by benefiting from the wide resources provided by the platforms. These platforms offer chances to design different evaluation tools and personalized tests through several different question types. They also include immediate feedback facilities through which students can take instant action. By this way, students' assignments can be checked and automatically corrected stylistically, syntactically and semantically which otherwise seemed to be repetitive and tedious because of the demanding workload. This not only

simplifies practitioners' work during the examination of students' work but also students can follow their progress with the help of concrete feedback. The functions that can be carried out through the recommended AI tools are holistically represented in the following table.

Table 3

Functions of the Recommended AI Tools for Practitioners

Recommended AI tools for general education	Functions (for practitioners)
Eduaide.ai, Magicschool.ai Monic AI TeacherMatic	Preparing teaching materials adapted to separate grade levels
	Creating lesson plans automatically
	Designing a range of evaluation materials tailored to students' specific and various needs and learning styles
	Providing students with concrete and immediate feedback without difficulty

Basically, it can be stated that with the inclusion of AI tools into teaching, practitioners can foster the efficacy of their teaching by having more control over their instructional duties and responsibilities.

GENAI Tools for Practitioners to Use in Foreign Language Education

In this section, certain GENAI tools have been examined and their potential for foreign language education settings has been explored.

ChatGPT

ChatGPT is an AI model developed by OpenAI. As a part of GPT (Generative Pre-trained Transformer) series, it has been trained on a vast amount of text data and it has the capability to generate humanized texts in natural language processing (NLP) tasks by using these data. ChatGPT can produce text-based dialogues, answer questions, make summaries, and generate creative writing. Within the context of foreign language education, it can be used for the following purposes by practitioners:

GPT can create texts adapted to different language proficiency levels. Language educators can benefit from this while preparing teaching materials especially for reading skills since leveled reading books or stories are indispensable parts of teaching reading.

Unknown words can be explained with their meanings and contexts in which they are used though GPT in accordance with different proficiency levels. Practitioners can have the chance to reach thousands of exemplary and contextualized sentences.

Regarding vocabulary teaching, high-frequency vocabulary items can be presented altogether that can contribute to students' vocabulary development. Besides, several different concept maps can be generated about target vocabulary items so that practitioners not only pronounce the vocabulary items but also have the chance to show a visual about them. Eventually, students who are also immersed in visual input can have a more effective and productive learning experience as their visual and auditory learning channels are supported simultaneously.

GPT can also function as a chatbot which can allow speaking and pronunciation practices. Practitioners can adapt this facility into their own teaching setting, especially for after-class time as a speaking assignment.

Talkpal AI

Talkpal AI is an AI-based platform that includes more than 50 languages including Turkish and English. It provides learners with written and verbal interactions. This platform aims to develop learners' speaking, listening, reading, and writing skills. In the paid subscription, there are language models designed for separate language skills, character-based role-play games, and dynamic debates. The chatbot facility allows users to engage in written or verbal chats on individualized topics. Furthermore, it also supports learners' process of communication by suggesting alternative responses in line with the natural flow of dialogues. Whereas English language support reflects the developed features of the platform, the quality of pronunciation for the Turkish language has not reached its optimal level.

Gliglish

Gliglish is an AI-based platform that aims to improve listening and speaking skills in several languages including English and Turkish. Free subscription includes character-based AI role-play games and a chatbot. Chatbot facility allows users to choose chat topics and questions in line with their own interests and preferences. Furthermore, it supports users with suggested answers in the scope of the natural flow of the dialogue and translation of the conversation. Besides, users can have the chance to practice their skills in different social contexts such as '*at the supermarket*' and '*at the restaurant*'. Lastly, it allows users to make fundamental pronunciation practices that can contribute to their overall speaking skill development.

Platforms that do not include Turkish language support: Univerbal.app / Leyaai.com / Loora.ai / Elsaspeak.com / Langotalk.org

These AI-based platforms include several languages, but Turkish language support is not available yet in their interfaces. The platforms allow users to interact with each other in many different topics, aiming to promote their speaking skills. Foreign language practitioners can foster their students' basic speaking skills such as greetings, producing daily conversations, and asking simple questions and answers both in-class and out-of-class settings. They can enrich the

context of their courses by using reading, speaking, listening, and writing modules existing in the platforms. Thanks to different character-based scenarios found in the platforms, language practitioners can make their students engage in life-like contexts.

Rytr.me

This AI-based platform is a content-creating tool such as blog posts, advertisement texts, and e-mails. This platform can be used in FLE settings. The platform allows users to create texts related to different scenarios so that students can create different dialogues in several social contexts. The story plot feature enables students to write different stories which can be used for role-play purposes in FLE settings. Students can improve their writing skills in different genres such as e-mails. Lastly, exemplary reading texts in which target vocabulary items are included can be created by language practitioners.

Languagereactor.com

Language Reactor is an AI-based platform that helps FLL based on videos from platforms like Netflix and YouTube. Students can foster their foreign language skills and engage in an interactive language learning experience while watching videos thanks to features like saving vocabulary items, and subtitles. This platform can be used in FLE settings for the purpose of improving pronunciation skills by repeating what they hear from the videos. Students can be immersed in genuine dialogues based on the videos they watch thanks to the chatbot feature of the platform being supported by the dictionary of the platform as well.

Suno

Suno is an AI-based platform that can create music. Language practitioners can create exemplary songs by using the target vocabulary items of the day, which can not only contribute to students' vocabulary development but also to their pronunciation skills. Besides, this platform can be useful for students to be creative as they can formulate their songs reflecting their own personal traits.

Craiyon

This platform allows users to generate visuals based on AI technology**.** Language practitioners and students can create different visuals based on the target vocabulary items. This platform can be used in FLE settings for teaching target vocabulary by creating their visuals. It can also be used for creative purposes. For example, students can create visuals that describe their own personal characteristics, and such a task can be used for improving speaking skills in class by comparing their visuals with the ones of their peers. Furthermore, students can be given prompts to create certain visuals and be asked to describe them in class to their peers as a speaking activity. Lastly, students can write or tell stories based on the visuals generated by the platform.

Character.ai

This AI-based platform enables users to create their own characters and engage in authentic conversations with them. Students can practice their language skills by experiencing several actions like planning vacations, having interviews, creating stories, and brainstorming. Story-creating features of the platform can be used in various FLE activities. For instance, students can complete stories prompted by the teacher and practice their writing and speaking skills in a creative way.Quickdraw Developed by Google Inc., "Quick, Draw!" is a drawing and guessing game based on AI technology. The users are supposed to draw an object within a given time and AI tries to predict what the object is. This game can be very helpful in FLE, especially in vocabulary teaching.

Discussion

In recent decades, the place of AI in education has been substantiated due to the widespread use of digital platforms in almost all aspects of life. Scholars emphasized the prevalence of AI-based platforms to be used in multifunctional ways in general education (Moorhouse, 2023; Williamson & Eynon, 2020; Kohnke et al., 2023). As the findings of the current document analysis implicated, AI-based platforms are preferred for various functions and purposes in education such as providing adaptive assessment systems, automated and personalized feedback highlighting students' strengths, weaknesses, and areas of improvement, smart and individualized teaching facilities, accessible and predictive education opportunities, constant monitoring of student's progress (Liu et al., 2017; Chen et al., 2020; Chiu et al., 2023; Harry, 2023; Al-Bahrani et al., 2018; Yang et al., 2022).

The in-depth analysis of the GENAI platforms in the scope of the current study has shown that the use of these facilities is quite promising in FLE settings. As also highlighted by several scholars, the use of GENAI tools in FLE has a very high potential in terms of improving four language skills (Kohnke et al., 2023; Rusmiyanto et al., 2023), engaging students in genuine conversations (Jiang, 2022), providing students with customized and adjusted natural input (Chon et al., 2021; Fryer et al., 2019; Huang et al., 2022), supporting students with an accessible language assistant (Haristiani, 2019; Winkler & Soellner, 2018), immersing students in personalized foreign language content and feedback (de la Vall & Araya, 2022; Kuhail et al., 2023), and encouraging students to make grammar, vocabulary, and pronunciation practices (Jeon, 2024). The results of the document analysis are in line with the findings of the previous academic studies as it has been found that GENAI platforms are used very frequently for a variety of purposes in FLE. As opposed to previous studies, it is also highlighted in the current study that GENAI tools designed for non-language purposes have also a high potential to be preferred in FLE classes depending on language practitioners' imagination and creativity since those platforms can be easily adapted and modified to be included in FLE settings.

Conclusion

In summary, it can be asserted that GENAI tools can be integrated into both general education and specifically, FLE

settings to achieve lots of educational goals and objectives, promoting the quality of teaching. With the integration of GENAI tools in FLE classrooms, language practitioners can equip their students with the desired foreign language skills by providing them with authentic and motivating learning environments that break the monotony of a traditional language class.

Recommendations

The prevalent use of GENAI platforms in FLE settings needs to be supported since the results of the previously conducted studies in the existing body of literature and the current one implicated that GENAI tools have a promising area of usage in FLE classrooms. As recommendations for further studies, the potential uses of GENAI tools investigated within the context of this study can be re-examined in experimental studies to find out their efficacy in FLE settings. The relationship between variables like students' motivation level, affective states, and efficacy beliefs and the employment of the examined GENAI tools in FLE classrooms can be studied which may yield a deeper understanding of the place of AI in FLE.

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