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Digital Pedagogical Innovations in English Language Education: A Systematic Literature Review

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Abstract

The objectives of this systematic review are as follow: to identify and evaluate integration of digital technologies into the teaching and learning of English language and to compare it with traditional non-digital methods. The study conducted in this paper used systematic literature review. This study used structured approach. Research on the impact of digital technology tools on enhancing language learning, with the use of AI-assisted learning applications, learning through mobile devices, game-based learning application. Based on the current literature review, educational technology offers significant advantage including, individualized learning instructions, content, real interaction, and the ability of gaining pragmatic experience in realistic virtual contexts. However, some of the current concerns which are still a thorny issue are the lack of access to digital technologies in homes and schools, the need for faculty development and the costs of leveraging technologies. The outcome of this study shows that digital innovations play a significant role in improving language learning and therefore lessons learnt should be applied affirmatively using the technologies alongside other conventional methods. Being a blend of the formal and the informal modes of learning methodologies this hybrid approach could lead to better language learning outcomes as compared to formal or technology-based approaches.

Introduction

The move to incorporate technology into fields of learning has transformed traditional approaches to learning and teaching and therefore requires the analysis of current approaches to teaching. Since there is increased adoption of digital technologies in learning systems across the world, it is paramount to assess the merits and demerits that this technological change has brought in the education sector. It can however be clearly observed that there has been a paradigm shift in the area of TESOL. In this regard, information technologies are no longer

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auxiliary means that help to enhance the existing approaches; on the contrary, they are the driving force behind the change of the methods of teaching and learning the language.

The role played by technology in learning cannot be overemphasized especially in an era where change has been described to be happening at a geometric rate. The availability of numerous resources and ways of education through the advancement of the technology also enabled educators and learners improve the learning spaces and interaction. Using technology like video conferencing as a virtual class, applications like language learning games, interactive software and concept of augmented reality also offers a number of approaches for teaching and learning the English language. These tools are made with the intention that will fit with different learner's way of perceiving, as well as to his requirement. These technologies holds the promise of enhancing students' participation and providing opportunities for effective teaching of English language to learners from all over the geographical, economic and social spectrum.

However, the integration of these advanced technologies has its pros, which may also need a clear understanding of when and how integrated, needs and understanding of their implications on education. Advancements in educational technologies mean that the educational process has to be modified in regard to its implementing strategies. Teaching methods require to be again and again evaluated to review their efficiency and relevance to the existing conditions. There is need to employ up to date teaching methodologies with consideration to the dynamic developments in the realm of informatics in order to satisfy the variability of demands and requirements for learning. The current trends in the educational process require an increase in versatility and a focus on training not only language learning but also critical thinking, creativity and information technology skills.

Besides, there are specific issues connected with the use of digital media in teaching English which have to be addressed: Some issues that can be considered critical are the emergence of a new form of divide where students learn that some students have access to technology while others do not, technology acting as a distraction and not a tool to connect with the learners. There is, however, the challenge of fostering the use of technologies into teaching and learning in ways that do not undermine the experience. This extends to and includes the distribution of technology as well as the preparation of teachers adopting technology, development of strict curriculum and the creation of effective policies and structures.

This paper has set out to analyze and discuss the incorporation of new technologies in the teaching of English language with reference to some factors while assessing its effectiveness in improving the overall achievements of teaching in English. Therefore, this review also seeks toai highlight successful strategies drawn from the body of knowledge about teaching with technology as well as possible challenges that may be encountered in different settings. Our goal is to contribute to the on-going debate about the improvement of English as a foreign language learning with technology. Our goal is to use technology to not only make teaching approaches remain relevant and current but also ensure that the technologies available are well employed to foster diverse classroom, which is diverse, inclusive and productive. This detailed study will therefore be useful for educators, policymakers and various stakeholders in the area of English language teaching practice and direction to enhance the future ELT practices in education.

The educational use of English has significantly shifted because of the technological advancements in teaching and learning, which present proponents of embodied practices as well as learners with different options and challenges in navigating (Hockly & Dudeney, 2018). As technology playing a significant role with the development of educational processes, it is

rather essential to understand the impact of technology in teaching and learning English. The incorporation of IT in teaching practices has enhanced and even transformed the conventional practices in learning environment (Lawless & Pellegrino, 2007). This requires a closer look into the ways and extent to which the social media platforms have been adopted and the consequent impact.

In the context of teaching English, a great variety of technological learning solutions is possible. Such innovations include applications that involves interactions, online learning platforms, virtual reality, and specially-developed language learning software (Anggrawan et al., 2019; Dubskikh & Butova, 2019). Such tools aim at improving the possibilities and the interest to the process of learning, its adaptability and openness for the generation of students who grew up with the help of digital technologies. For instance, there are numerous materials available from the internet, enriched with additional practical exercises that could be solved and promising study trails with immediate feedback in case of an e-learning approach, which are not really feasible in a kind of classroom context (Anggrawan et al., 2019). Virtual reality, in contrast, has the possibility to offer students a more realistic setting in terms of themselves being placed into English-speaking contexts in which they would be able to use English as they practical language (Lan, 2020). This makes the learning process more effective and thorough since there is a relation between the theoretical knowledge and the practical use of the same.

The use of these technologies has brought about shift from a teacher-centered teaching to a learner-centered approach where students are given full control of their learning rate and mode. This shift is of great importance because it targets learning in individual context after catering for their different learning styles and creates a better learning environment. Third, teaching and learning resources are easily accessible through digital tools and constant supportive platforms thus creating a system that continuously keeps students practicing language and constantly exposed to it (Beach, 2012; Viberg & Grönlund, 2017).

However, the integration of other forms of pedagogical technologies offers some challenges at a wider extent. Another important consideration which should be taken into account can be explored under the umbrella of digital divide which might limit the possibilities to use these innovative tools by disadvantaged students or coming from the less developed regions. If educational technology is not immediately made accessible by a society or a country to learners in need, the above-discussed teaching and learning paradigms may only benefit a small fraction of learners and risks of escalating current inequalities in education. However, the effectiveness of the use of these resources depends on the teacher's ability and readiness to use them in the class lessons (Valverde-Berrocoso et al., 2021). Teachers should be trained from different aspects of those technologies in addition to pedagogy practices that might enhance the efficacy of the technological tools used on the student achievements (Jung, 2005).

Furthermore, the creative application of innovation in the digital age creates question regarding to the quantity and quality of learning that could be achieved in terms of the English language, (Pahomov, 2014; Mhlanga, 2023; Greenhow et al., 2009). I think that, it is highly significant now to critically evaluate to what extent these technologies enhance actual understanding and long-term retention of language competencies. Such research and studies are important in helping understand the impact of the tools in enhancing the learning abilities of the learners in terms of their cognition as well as language mastery.

Lastly, the technological advancements in teaching pedagogy can transform the learning of English language as it is made personal, engaging and more obtainable (Asad et al., 2021). However, if one is to promote these technologies to offer their full potential, it is imperative to address the challenges related to access, the training of teachers, and efficacy of instruction.

Further development and reflection are crucial to improve these technological forms and means for distance learning to always correspond to the learner's and the teacher's needs in a modern rapidly developing environment (Sritulanon & Chaturongakul, 2017). Our goal as we move forward should therefore be to leverage these developments in order to create a better solution for practicing English language in a more inclusive, comprehensive and efficient manner.

The primary purpose of this systematic literature review is to investigate the ways and extent in which the English language teaching can adopt these digital innovations and the consequence on students' results. The present review aims at synthesizing the available literature in the area in question to provide a comprehensive review of the effective, challenging and educative aspects inherent to the use of ITs and IMs for teaching and learning English. The purpose of this research is to explore various forms of technology integration into learning process like participating software, application, virtual learning environment and augmented reality. The goal is to identify important trends, outcomes, and best practices that can guide future pedagogical strategies and improve English language learning experiences worldwide.

Research Methods

This paper used systematic literature review as an approach of collecting the literature. An initial extensive search was conducted in a number of popular scholarly databases that are known to provide resources on educational and technological field. Such databases are Scopus, Pub Med, ERIC databases and Google Scholar among others. The articles were identified based on the articles published between January 2014 to the present to include of the latest trends in the use of digital pedagogy among the students. Some of the terms used by the user include the 'digital pedagogy', 'teaching English to students', 'instructional technology', 'teaching English online', 'integration of technology in language acquisition'. There are seventy articles that were found using publish or perish.

Thereafter, such articles were extracted from the selected studies using standardized forms that were used to take further discussion and identified 22 articles. This approach was adopted to capture a host of studies on digital innovations in teaching English, so as to capture as many articles as possible on the topic of interest. Sources considered included journal articles, conference proceedings, and doctoral theses that proffered research findings or important discussions on technological advancements in EL context. The exclusion criteria involved articles that have not gone through peer review, the articles that are more than ten years old, the articles written in Languages other than English and the research studies not directly related to the teaching of English.

The criteria were set with the purpose of filtering peer-reviewed and therefore, high-quality and highly relevant material. As to the focus, these are peer-reviewed publications and the papers should be published in the last five years to reflect the current technologies and methodologies. Data were extracted systematically with regard to the study characteristics; the digital pedagogical innovations used; the outcomes measured; the data collection methods used; the findings; and the stated limitations of each study. For instance, the review of a research where virtual reality was used for teaching English as a foreign language pointed out specific tools that were employed, the Publish or Perish and Vosviewer as the Data Analysis Tools. It also mentioned the educational level of the participants, the outcome measures used to assess engagement or proficiency improvement, and the assessment methods employed. This extensive data extraction enables a thorough analysis and comparison of the effects of various

digital tools on learning outcomes in English language education. Additionally, it assists in the identification of trends, gaps, and areas that require further research.

Results and Discussion

Description of Collected Data

From the previous research, it is evident that AI, IT and digital tools exercise a positive influence on education majorly in the lifting of learning potency and individualization. Using the concept of 'AI & IT,' we can solve some important issues and develop further sustainable education. Technology enhanced, player adapted instructional games and multimedia enhance reading skills and EFL performance. Intelligent tutoring systems or ITSs and artificial intelligence based tutoring systems have truly made the creation of desirable paths possible and are very efficient in the area of learning. Thus, the implementation of mobile technology and of a game-like approach to learning environments in the subject of English comes as beneficial for motivation, as for learners' engagement and satisfaction as for the general outcome of the foreign language learning process.
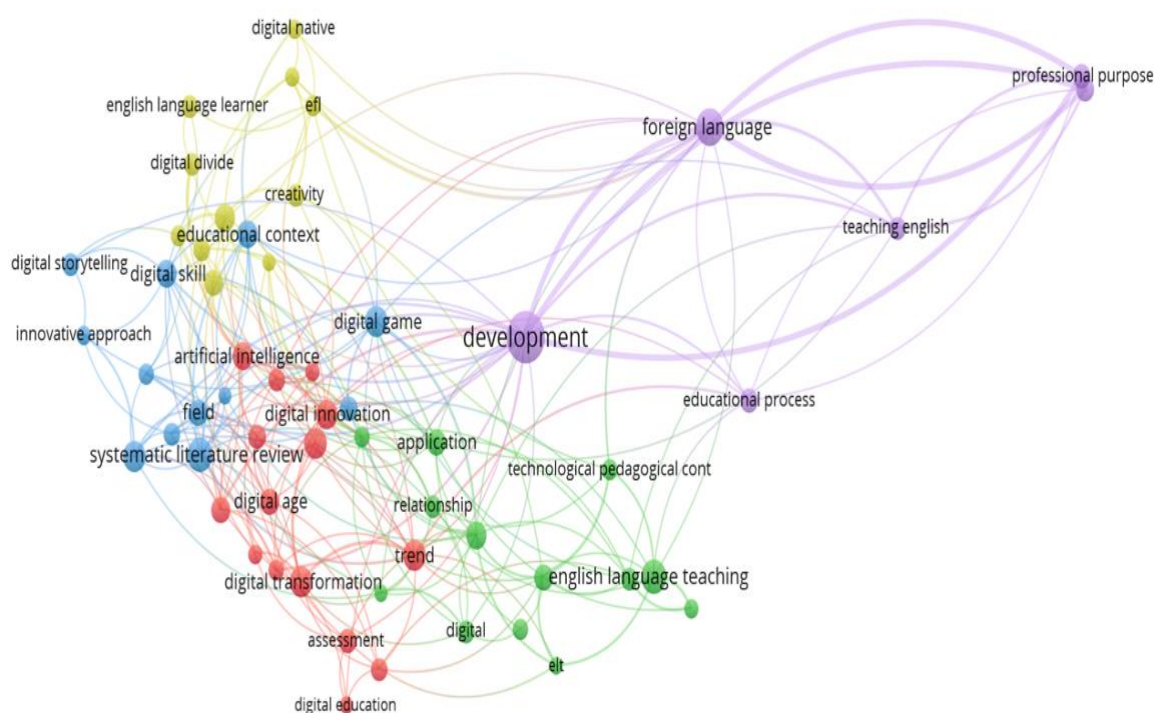

Figure 1. The identification of trends and gaps

Moreover, the AI models can be used for enhancing the blended teaching efficiency, which in turn can give a new dimension to the conventional teaching learning theories besides enhancing the quality of education. The educational implications of these findings are far-reaching for teachers, school administrators, curriculum framers, policy makers and technology producers. AI and other technologies can be used in the teaching process to help educators meet students' needs and make learning processes more interactive and content-rich. The authorities should also discuss and integrate them into the academic programs for learners and ensure that they are offered adequate support if they are to succeed in the integration of these technologies. Authors of technologies are urged to create and enhance the technologies available to teach in

particular specializations in order to meet the needs of those learners and teachers. In general, the more use of AI, IT, and digital technologies in the learning process can be beneficial for effective teaching and training and student's outcomes and preparation for the future society.

Table 1. Previous Related Research

Author	Title	Methodology	Key Findings
Lin et al. (2023)	Integration of AI and IT in sustainable education	Systematic review	Explores how AI and IT support sustainable education, identifying key challenges and future trends.
Prasetyo (2022)	Digital games and reading skills	Qualitative-interpretative design	Examines integration and dilemmas of digital games and reading skills, suggesting improvements in learning reading through games.
Almahyra (2023)	AI-driven tutoring systems for English language learners	Review	Discusses adaptability of AI systems in customizing learning experiences, emphasizing personalized learning paths.
Alrakhawi et al., (2023)	Intelligent Tutoring Systems In Education: A Systematic Review Of Usage, Tools, Effects And Evaluation	Systematic Literature Review (SLR)	Outlines the application and impact of ITS in education, utilizing PRISMA guidelines for systematic reviews.
Nabung (2023)	Improving EFL learning outcomes by using interactive multimedia approach	Quasi-experimental	Shows that interactive multimedia tailored to learning styles significantly improves EFL outcomes.
Ma et al., (2014).	Intelligent Tutoring Systems and Learning Outcomes: A Meta-Analysis	A Meta-Analysis	ITS are relatively effective tools for learning is consistent with our analysis of potential publication bias.
Shahrol et al., (2020)	A Systematic Literature Review on teaching and learning English using mobile technology	Systematic review	The results show that providing suitable educational technology is one of the key success factors to enhance teaching and learning English. This paper reports the key gap and limitation in current studies that focus on teaching and learning English using mobile technology.
De La Cruz et al., (2023).	Use Of Gamification In English Learning In Higher Education: A Systematic Review	A Systematic Review	In gamified English learning environments, pleasantness, attractiveness, motivation, and enjoyment were all desirable qualities. Gamification's intended learning goals were language content learning, involvement, motivation, and satisfaction
Shi et al., (2023)	Utilizing AI models to optimize blended teaching effectiveness	Experimental design	This study highlights the potential for educators to transform the way we teach and learn and improve the

	in college-level English education		quality of education and support student success.
Lai & Zheng, (2018)	"Self-directed use of mobile devices for language learning beyond the classroom"	Survey and Interview Study	Explores how learners use mobile devices for self-directed language learning outside the classroom, emphasizing personalized learning and practical language use.
Klimova, B. (2018)	"Mobile phones and/or smartphones and their apps for teaching English as a foreign language"	Systematic Literature Review	Reviews the effectiveness of mobile apps in enhancing English learning outcomes, particularly in vocabulary acquisition and engagement.
Hung,. (2017)	"Clickers in the flipped classroom: Bring your own device (BYOD) to promote learning"	Mixed-Methods Study	Evaluates the impact of using clickers in a flipped classroom, finding that it significantly enhances student engagement and interaction in language learning.
Cai et al., (2022)	Augmented reality technology in language learning: A meta-analysis	Meta-Analysis	Demonstrates that AR significantly improves language acquisition, particularly in vocabulary retention and learner engagement.
Kuddus, (2022)	"Emerging Technologies: Artificial Intelligence in Language Learning"	Literature Review	Discusses the potential and challenges of AI in language learning, focusing on personalized learning and adaptive technologies.
Dehghanzadeh et al., (2021)	Using gamification to support learning English as a second language: a systematic review	Systematic Review	Reviews how gamification can increase motivation and engagement in language learning, with a focus on higher education contexts.
Pimmer et al., (2016)	"Mobile and ubiquitous learning in higher education settings: A systematic review"	Systematic Review	Analyzes the role of mobile learning in higher education, highlighting its potential to make learning more flexible and accessible.
Yoon, (2020)	"Blended Learning in Language Education: Strategies for Success"	Case Study	Examines how blended learning, combining traditional and digital methods, enhances language learning outcomes.
Gutiérrez-Colón et al. (2023)	"Mobile-assisted language learning and pronunciation instruction: A systematic literature review"	Systematic Literature Review	Highlights the effectiveness of mobile-assisted learning in improving pronunciation skills, though challenges in pedagogical implementation remain.
Shortt & Tilak. (2023)	"Gamification in Mobile-Assisted Language Learning: A Systematic Review of Duolingo Literature	Systematic Review	Summarizes research on Duolingo's gamification, noting design focus and gaps in studies about language learning outcomes.

	from Public Release of 2012 to Early 2020"		
Lin & Lin (2019)	"Effectiveness of Mobile-assisted Language Learning in Developing Oral Proficiency: A Comparative Systematic Review"	Comparative Systematic Review	Reviews mobile learning's impact on oral proficiency, finding that MALL tools significantly enhance speaking skills compared to traditional methods.
Ishaq et al., (2021)	"Mobile-assisted and gamification-based language learning: A systematic review"	Systematic Review	Explores how mobile gamification enhances language learning, particularly in engagement and retention.
Zare & Derakhshan, (2022)	"Mobile-assisted language learning: Concepts, contexts, and challenges"	Literature Review	Discusses the broader context of MALL, including technological, pedagogical, and social challenges.

The significance of digital innovations in enhancing English language learning

This is particularly an accord with AI-tutoring systems as described by Almahyra (2023), suggesting that technology can capture aspects of the learner's style and preference thus enhancing the learning of language. Learner control involves ability to get feedback, content delivery that suits the learning ability of the learner, and learning pattern prediction in case the learner may face difficulties in the progression of the course hence more individualized than adaptive systems (Almahyra, 2023). An approach of adaptive learning not only helps in accommodating diverse learner needs but also promoting learner control that is important in language learning process.

By applying the multimedia as an interaction tool in learning English, it has been evident the benefits that learning comes with. Nabung (2023) said that the dynamic relationship between the interactive multimedia applications and learning modes can enhance the EFL learning performance dramatically. It also emerged that when knowledge delivers in text, video, audio, and interaction in line with students' sensory modalities, learning outcomes are better (Nabung, 2023). Secondly, this use of different forms of media helps students who have different learning abilities to pick what they are comfortable with, hence make learning easier and more effective for the learners.

Another of the digital solutions that has been implemented successfully in the teaching of English, is gamification. When applied in the learning environment, the principles borrowed from games enhance learners' motivation. Laura-De La Cruz et al. (2023) Further, the present study found that the use of gamification strategies can increase students' motivation and engagement, thus facilitating their learning of language in higher learning institutions. The study also noted that the intention of gamified learning is to support active approaches of learning and student engagement while ensuring that motivation and effort are maintained over an extended period (Laura-De La Cruz et al., 2023; Ng & Lo, (2022). Besides, such environments facilitate fun in learning as well as enhance the increased focus with the language learning process.

Allowing appreciation of original texts and permitting access to additional varied types of texts which may be otherwise hard to reach in Virtual Reality (VR) also yield other transformative returns in English language education by enabling students to develop ability to interact in real-

life situations as they train. VR could be used to create authentic contexts for language practice, allowing learners to use English in virtual scenarios that mimic everyday interactions (Kessler, 2018). This exposure is invaluable as it helps learners develop practical language skills in a safe and controlled environment, thereby reducing the anxiety associated with real-world communication.

Furthermore, mobile learning technologies have expanded the reach and accessibility of English language learning. The flexibility of mobile platforms enables learners to access educational content anytime and anywhere, thereby facilitating continuous learning outside the traditional classroom setting. The study discussed various mobile learning approaches that support self-paced and situated learning, making it easier for students to integrate language learning into their daily lives (Li et al., 2022). This accessibility is particularly crucial in regions where traditional educational resources are limited, thus democratizing learning opportunities.

Advantages and Potential Obstacles Encountered

Through adopting the new technologies in teaching languages, various changes have been realised in language education and teaching, though these changes come with challenges which have to be addressed by faculty and institutions. There are numerous advantages to teaching languages in technology enhanced contexts: The learners are likely to be more motivated, the access is improved, there is practical use, and the learning can be made personal. Interactive media, for instance, enhance learners' game-like interest and enthusiasm enormously as compared to their traditional counterparts. This is whyLaura-De La Cruz et al. (2023) focusing on the effectiveness of gamification in English learning stressed that not only the studying process of the second language becomes much more fun, but the general engagement and motivation also grow, and thus, the results in terms of language cognition and retention improve. Further, Nabung (2023) explains how multimedia that involves number of modalities; text, audio and video, can address for all the students' learning mode preference and thus make students more engaged in learning activities facilitating enhancement of learning achievements.

Mobile learning technologies offer flexibility that erases time and geographical space constraints which were previously present. Flexibility in obtaining the materials often is one your biggest advantages in mobile learning as it adapts to the lives of learners who may have other commitments or do not have easy access to a conventional classroom. VR is, therefore, more advantageous in that it provides the student with real-life simulation where he or she can practice the language skills that have been taught. From Alam (2023) it is clear that VR does more than just develop the practical skills of a language, but it educates learners more for real-world interactions since they practice English in real settings availing a controlled setting. In addition, present day ITS's are Artificial Intelligence based and are capable of altering their tutoring based on learners' requirements as well as deliver contents based on learning velocities and preferences. In Almahyra (2023) the author explains how AI can enhance the educational models defined in order to provide the best learning environment by identifying the strengths and the weaknesses of the learner. Such integration is not without challenges though; and that is why there are various challenges associated with the integration of such advanced technologies. Technological disparity poses a challenge with the gap that exists to tell who can and who cannot access these tools. Not all the students have a technological device or internet connection hence the extinction of the language may have an even worse effect on the students from the less privileged backgrounds. In this respect, effective utilization of edu-tech depends on numerous factors such as professional development of teachers and their flexibility. They may not be trained effectively on how to use these tools in classroom to enhance the language

learning hence they don't fully exploit this helpful tool hence the positive impacts may not be fully realized.

Cost is another major concern because introduction of new technologies may involve significant capital investments in the relevant technology utensils, applications, and even such basic needs as Internet connectivity. This can be quite difficult for schools which receive a small amount of funding. Furthermore, one type of learning may prove to be too dependent on technology and therefore reduce the hours dedicated to acquiring a good basis for further language learning. Hence, if technology is exploited in language education, there are many advantages for this reason, technology implementation in language education requires the best strategies and moderation to impact positively on the instructing and learning processes without complicating them.

Contrast the Outcomes with More Traditional, Non-Digital Approaches

The embrace of use of technologies in the teaching of English language makes it a paradigm shift from traditional methods. Closely connected with teacher-centered approach based on lectures, memorization and reference books and other dated tools, have been the mainstays of language teaching. However, with the use of digital technologies there are new exciting elements within language learning which seem to differ from these traditional techniques. Teaching and learning applications that involve the use of technology are effective as they provide more stimuli compared to the conventional teaching styles. For instance, In several ways, Gamified learning environments afford possibilities that conventional classroom learning environments cannot. Source such as Stavroulia et al. (2019) and among other scholarly works. demonstrate how interactions in foreign language can be mimicked with VR thereby enabling the learners to practice their language skills more effectively in numerous comprehensive and standardized situations. In addition, with the demand of an automated system epitomized by AI –tutoring systems as pointed out by Almahyra (2023), learners are provided with paths to follow depending on the learning style, hence this differs from the traditional education systems. They can adapt the level of the tasks depending on the learner's performance in real-time and this is something that is hard to achieve in the course of learning when using traditional methods of teaching and learning that do not differentiate one learner from another. This way of designing the learning process can help students stay interested and provide them with relevant learning support needed was not previously met, thus increasing students' learning effectiveness.

Further, the employment of the mobile learning platforms improves accessibility as opposed to conventional classroom learning, this improves the flexibility of the students since they can learn the language learning material at their own convenient times. The paper on Stavroulia et al. (2019). observes that mobile technologies not only enhance access to learning resources but also enhance relations and communication between the students and teachers therefore expanding the learning space beyond the classroom.

This means that though digital approaches are effective in achieving the goal, traditional methods are still useful especially when it comes to building basics such as grammar and vocabularies. Classical approaches, stressing the system recall of the information and clear articulated practice, give understanding that is sometimes disregarded in such techniques as stimulation.

Many technological techniques qualify as effective tools in language acquisition since they are enjoyable, individualized and easily accessible as opposed to the ideation of them replacing standard approaches to learning languages. The holistic concept of learning may perhaps entail

that the best educational approach may incorporate both the conventional and the modern technology and incorporate what each has to offer as far as learning is concerned especially in language learning. Such an approach could incorporate the efficiency and structure of the conventional techniques coupled with enthusiasm and flexibility of technology-enhanced learning.

Conclusion

The changes that have been brought about by the digital technologies when it comes to learning English as a foreign language in contrast to the conventional techniques. Virtual reality, AI as a tutor, technologies for learning through mobile devices and the application of games in learning environment was used to assess the improvement in engagement and delivery methods for more individualized learning. This study uncovers the benefits that digital can bring into the classroom especially in getting the attention of the learners and facilitating differentiated instruction. However, they also come with their problems such as equity in access, requirement of professional development for the teachers, and the costs in using technological support. The research about the classroom implementation suggests that a blend of both the conventional and new technologies is appropriate in that it offers a better solution than recreating the speaking context from scratch. This approach is suggested to take advantage of the rigidity of traditional approaches, with the interactive and flexibility of technologies derived from the latter approach.

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