*Working paper*

**Digital tools in English Language Education: cross-matching of experiences in Poland and Montenegro**

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**Abstract**

Technology has introduced new dimensions to language learning by enabling personalized, interactive, and accessible educational experiences. Unlike traditional classroom settings that often adopt a one-size-fits-all approach, digital tools can cater to individual learner profiles, addressing specific strengths, weaknesses, and preferences. Tools such as adaptive learning platforms and AI-powered chatbots provide tailored feedback, enhancing learner autonomy and fostering deeper engagement with the language. Literature review is aimed on analyzing findings from the literature related to digitally enhanced English language teaching and learning, which is further used for designing research study tailored to specific contexts of Montenegro and Poland.

**Introduction**

The integration of technology into education has transformed traditional teaching and learning paradigms, particularly in the realm of language acquisition. English, as a global lingua franca, has witnessed a surge in innovative pedagogical approaches facilitated by technological advancements. From mobile applications and gamified platforms to virtual reality (VR) environments and artificial intelligence (AI)-driven personalized learning systems, the use of digital tools has significantly reshaped the methodologies employed in English language education at all levels.

Technology has introduced new dimensions to language learning by enabling personalized, interactive, and accessible educational experiences. Unlike traditional classroom settings that often adopt a one-size-fits-all approach, digital tools can cater to individual learner profiles, addressing specific strengths, weaknesses, and preferences. Tools such as adaptive learning platforms and AI-powered chatbots provide tailored feedback, enhancing learner autonomy and fostering deeper engagement with the language. This level of personalization not only accelerates the acquisition of linguistic skills but also cultivates a sense of ownership over the learning process.

Moreover, technological tools bridge geographical and cultural barriers, granting learners access to authentic language materials and diverse communicative contexts. Virtual exchanges, online discussion forums, and multimedia resources expose learners to real-world language use, thereby improving their fluency and cultural competence. Immersive technologies like VR and augmented reality (AR) further enrich these experiences by simulating authentic environments where learners can practice language skills in contextually relevant settings.

Beyond the classroom, the intersection of technology and language education has far-reaching implications for shaping future innovators and driving global economic shifts. English proficiency, powered by technology-enhanced learning, equips learners with the communication skills necessary to engage in international collaboration, entrepreneurial ventures, and knowledge-sharing across disciplines. This is particularly crucial in an era where global markets are increasingly interconnected, and innovation thrives on cross-cultural and cross-disciplinary collaboration. The ability to navigate diverse linguistic and cultural landscapes through technology-enhanced English learning positions individuals and nations as active participants in the global economy, fostering a workforce capable of addressing the challenges and opportunities of a rapidly evolving world.

Despite the numerous advantages, the implementation of technology in English language learning presents challenges that warrant careful consideration. Issues such as the digital divide, lack of teacher training, and concerns regarding academic integrity highlight the need for thoughtful integration strategies. Addressing these barriers is essential to ensure that technological advancements serve as effective tools for equitable and inclusive education.

This paper explores the impact of technology on English language learning by examining its applications, benefits, and challenges. Drawing on recent empirical studies, it aims to provide a comprehensive understanding of how digital tools can be leveraged to enhance learner engagement, improve language proficiency, and address contemporary educational needs. By situating this discussion within the broader context of global education trends and economic imperatives, the paper seeks to contribute to the ongoing discourse on technology’s role in shaping the future of language education and global innovation.

Poland, a member of the European Union, has shown significant progress in digital education, spurred by EU funding and policies promoting ICT integration. English proficiency is a high priority in Polish education due to the country's strong economic ties with global markets and the growing demand for English skills in the workforce. Montenegro, as a smaller nation in the Western Balkans, has been progressively adopting digital education practices as part of its broader efforts to modernize its education system. The use of digital tools in English language learning is recognized as a means to align with global educational standards and improve English proficiency among students. Finally, presented results will be used for creating research instruments tailored to Polish and Montenegrin contexts.

**Methodological foundations**

The methodology for this literature review is based on a systematic and structured approach, ensuring a comprehensive evaluation of the benefits of digital tools in English language learning. However, we applied a step-wised approach in identifying key aspects for the analysis, since development of digital tools attracted significant interests, and numerous publications are available especially in the period during and after COVID-19.

The study adopts a comparative and systematic literature review (SLR) approach, combining country-specific insights with broader trends in digital education. The SLR methodology ensures a rigorous evaluation of peer-reviewed studies and reports, allowing for the synthesis of findings relevant to Montenegro and Poland. The research design emphasizes the dual focus on English language learning and entrepreneurial education to provide an interdisciplinary understanding of the role of digital tools in fostering essential 21st-century skills.

The review process aligns with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, ensuring a transparent and replicable methodology. Both qualitative and quantitative studies were included to capture diverse perspectives and methodologies used in the existing literature.

**Digitally enhanced personalized learning**

The integration of digital tools for personalized English language learning has been extensively explored in recent literature, highlighting both advancements and challenges in this field. The following Table summarizes findings from selected papers, by presenting analyzed technologies (column 2), specific aspects of learning/teaching approach (column 3), as well as identified challenges (column 4).

Table 1. Digitally enhanced personalized learning: findings from the literature

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| --- | --- | --- | --- |
| **Source** | **Digital technologies/ tools** | **Specific aspects of learning/teaching** | **Key findings** |
| Woo, H., & Choi, Y. (2021). | AI-based language learning tools developed between 2017 and 2020 | Identifying errors, providing feedback, and assessing language abilities | Learners using these tools demonstrated improvements in language proficiency and knowledge. |
| Similarly, Li and Lan (2022) | Digital language learning (DLL) applications, including mobile computing, virtual reality, and digital games | Potentials for enhancing second language acquisition | Emphasized the importance of aligning these tools with learners' needs to maximize their effectiveness. |
| Li and Lan (2022) | Gamified features in digital tools | Motivational benefits of interactive and gamified features which can foster greater learner autonomy and engagement | Particularly effective in maintaining student interest over extended periods. |
| García-Sánchez and Santos-Espino (2021) | Gamified platforms for English language learning | Vocabulary retention rates among English language learners | Increased time-on-task and improve vocabulary retention rates among English language learners. |

**Increased engagement of learners**

The integration of digital tools into English language learning has been extensively studied, with a focus on their impact on student engagement. The following Table summarizes findings from selected papers, by presenting analyzed technologies (column 2) and valuable insights into how these technologies enhance learning experiences. (column 3).

Table 2. Digitally enhanced personalized learning: findings from the literature

|  |  |  |
| --- | --- | --- |
| **Source** | **Digital technologies/ tools** | **Insights into how these technologies enhance learning experiences** |
| Akpen, J., Adeyemi, T., & Nwankwo, P. (2024) | Online learning | The study found that online platforms offer flexibility and accessibility, enabling students to learn at their own pace, which can lead to improved academic performance. However, the review also noted that the effectiveness of online learning varies based on factors such as course design and student motivation. |
| Turdiyeva (2023) | Use of interactive technologies in English language learning. | The research highlighted that tools like interactive whiteboards, language learning apps, and online collaboration platforms can enhance student motivation and engagement by providing interactive and personalized learning experiences. |
| *ReCALL* (2023) | Immersive learning technologies, such as virtual reality (VR) and augmented reality (AR), in K–12 English as a Second Language (ESL) learning | The findings indicated that these technologies offer authentic linguistic contexts and facilitate practical application of English skills, thereby increasing student engagement and motivation. |
| Akhter and Sultana (2023) | English language teachers' perspectives on using digital tools in teaching | The study revealed that while teachers recognize the potential of digital tools to enhance student engagement, challenges such as lack of training and resources can hinder effective implementation |
| Dashkina, A., Kobicheva, A., Lazovskaya, T., Tokareva, E., Tarkhov, D., & Guselnikova, I. (2022). | Computer-Supported Collaborative Learning (CSCL) - analyzing students' learning outcomes and engagement levels | The research involved 81 undergraduate students at a technical university, divided into experimental and control groups. The experimental group participated in CSCL activities, while the control group engaged in traditional learning methods. Findings indicated that the CSCL group exhibited higher engagement and improved language proficiency compared to the control group. The study also identified optimal strategies for forming collaborative teams, emphasizing the importance of diverse skill sets and balanced participation |
| Tao, Y., Zhang, M., Su, Y. *et al.* (2022) | English language learners construct social knowledge and engage in socio-emotional interactions during computer-supported collaborative writing activities | The study compared six high-performing and six low-performing groups, analyzing their online interactions. Results showed that high-performing groups demonstrated more effective communication, mutual support, and positive socio-emotional exchanges, leading to better collaborative writing outcomes. The study highlighted the significance of fostering positive interdependence and social cohesion in CSCL environments to enhance learning performance. |
| Lin, X., Zheng, Y., & Wang, J. (2020) | CSCL in developing higher-order thinking skills among English language learners | The study implemented technology-based approaches, including electronic literacy and collaborative learning platforms, in English language teaching. Findings revealed that CSCL environments encouraged critical thinking, problem-solving, and analytical skills. The research emphasized the need for well-designed collaborative tasks and the integration of digital tools to effectively promote higher-order thinking in language education. |
| Zhang S and Hasim Z (2023) | Benefits and drawbacks of using gamification and the specific game elements | Their analysis of 40 journal articles revealed that gamification has been widely utilized in over ten non-English-speaking countries, indicating its growing popularity in facilitating EFL/ESL learning. The benefits identified include improved language skills, positive effects on students' attitudes, and the creation of authentic learning environments. However, challenges such as technical issues and the short-lived positive effects of gamification were also noted. Commonly used gamification elements included feedback, points, quizzes, digital badges, leaderboards, and rewards. |
| Laura-De La Cruz, K.M., Noa-Copaja, S.J., Turpo-Gebera, O., Montesinos-Valencia, C.C. Bazán‑Velasquez, S.M., & Pérez-Postigo, G.S. (2023). | Gamification elements in learning and their impact on students' emotions, attitudes, and educational outcomes | The review assessed students’ learning impressions—such as emotions and attitudes—and educational results, including engagement, motivation, and enjoyment, when participating in gamified English learning in digital environments. The findings suggest that gamification can enhance student engagement and motivation, though the effectiveness varies based on the design and implementation of gamified activities. |
| Chan S and Lo N (2024) Enhancing EFL/ESL instruction through gamification: a comprehensive review of empirical evidence. *Front. Educ*. 9:1395155. doi: 10.3389/feduc.2024.1395155 | Incorporation of gamification into EFL/ESL pedagogy | Their analysis identified a spectrum of gamification components integrated within educational frameworks and confirmed its efficacy as a catalyst for language acquisition. The evidence underscores gamification's role in enhancing English proficiency, positively influencing learners’ attitudes and emotional engagement, and fostering an immersive language learning environment. The review also provides strategic insights and identifies key gamification components instrumental in designing gamified educational experiences. |

**Conclusions**

The literature indicates that digital tools, when effectively integrated, can significantly enhance engagement in English language learning. However, successful implementation requires addressing challenges such as teacher training, resource availability, and ensuring equitable access to technology. Ongoing research and professional development are essential to maximize the benefits of these digital tools in educational settings.

These studies collectively underscore the following:

* multifaceted nature of engagement in digital language learning and provides a roadmap for future research and practice
* potential of CSCL to enhance English language learning by improving engagement, facilitating social knowledge construction, and fostering higher-order thinking skills. Effective implementation of CSCL requires careful design of collaborative activities, attention to group dynamics, and the integration of appropriate technological tools to support interactive and meaningful learning experiences.
* potential of gamification to enhance English language learning by improving engagement, motivation, and proficiency. They also emphasize the importance of careful design and implementation to address challenges such as technical issues and to maximize the benefits of gamified learning experiences.

This integrated analysis underscores the interconnectedness of technology, pedagogy, and access in the effective deployment of digital tools for personalized English language learning. Continued research and cross-disciplinary collaboration are vital for realizing their full potential.

Presented literature review was used as a basis for designing a survey for exploring existing practices and impacts of digital tools in English language learning in Poland and Montenegro, focusing on the following: (i) *Adaptability*: Online platforms and immersive technologies should be designed to meet the diverse needs of learners; (ii) *Interactivity*: Tools that prioritize collaboration, gamification, and real-world applications have a higher likelihood of sustaining engagement; (iii) *Support Systems*: Effective implementation requires teacher training and access to adequate resources; (iv) *Research-Driven Design*: Digital tools must be informed by empirical studies to align with pedagogical goals and learner behaviors.

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