



Innovation and technology in language teaching: challenges and opportunities

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ABSTRACT

This article explores the challenges and opportunities that arise when determining what, how, and when to teach in the language teaching context where technological tools are present. Its integration represents a transformation that fuses traditional methods with indispensable digital skills. It goes beyond mere curriculum updates, incorporating methodologies that promote participation, creativity, and problem-solving in real-world contexts. Furthermore, this process demands continuous professional development for teachers to manage resources and virtual environments, as well as adaptation to each educational stage. Despite challenges such as the digital divide, this change enhances the quality of learning and prepares students to face a constantly evolving global and digital world.

KEYWORDS: language teaching, digital competence, active methodologies, technical innovation.

Innovación y tecnología en la enseñanza de lenguas: retos y oportunidades

RESUMEN

Este artículo explora los desafíos y oportunidades que surgen al determinar qué, cómo y cuándo enseñar en el entorno educativo de la enseñanza de lenguas en el que las herramientas tecnológicas están presentes. Su integración representa una transformación que fusiona métodos tradicionales con competencias digitales indispensables. Esta va más allá de la actualización curricular, incorporando metodologías que favorecen la participación, la creatividad y la resolución de problemas en contextos reales. Además, este proceso exige la formación continua del profesorado para gestionar recursos y entornos virtuales y la adaptación según la etapa educativa. A pesar de los retos que se presentan, como la brecha digital, este cambio mejora la calidad del aprendizaje y prepara a los estudiantes para enfrentarse a un mundo global y digital en constante evolución.

PALABRAS CLAVE: enseñanza de lenguas, competencia digital, metodologías activas, innovación tecnológica

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1. INTRODUCTION

Language teaching is no longer limited to the acquisition of traditional skills such as reading, writing, and listening comprehension. Nowadays, it is essential to include digital competencies that enable students to navigate a digital ecosystem (García 13). The integration of technology in language education raises questions about how teachers can optimize its use without losing sight of essential pedagogical principles. This digitalization has altered the ways in which individuals interact with languages. According to various studies, combining Information and Communication Technologies (ICT) with communicative approaches enhances student interaction and motivation, leading to more meaningful learning (Bermúdez Jiménez and Montoya Díaz 378; Espinosa Barrero 124; Alvarado Andino et al. 2514). ICT has acquired a fundamental role, facilitating access to linguistic resources and promoting innovative methodologies that improve the development of communicative competencies in diverse contexts (García-Sampedro et al. 108). The rise of artificial intelligence platforms, gamification, and online collaboration is redefining the dynamic between students and teachers, fostering more autonomous learning. For example, adaptive learning systems such as Coursera and LightSail, among others, allow students to progress at their own pace, providing immediate feedback tailored to their specific needs (Aparicio-Gómez and Aparicio-Gómez 345).

Moreover, teacher training and digital literacy have become important aspects in ensuring the effective implementation of ICT in language teaching (Granda Asencio et al. 381). Training in new methodologies enables educators to use technology as a complementary tool that enriches the learning process without replacing human interaction or the development of analytical and critical skills. In this regard, preparing to effectively introduce technology into the classroom is relevant, as inappropriate use of these resources may create barriers instead of serving as facilitators.

This paper will analyze how technological innovation influences language teaching, how methodologies can be adapted to maximize its impact, and the best practices for its implementation at different educational levels. By understanding the challenges and opportunities presented by this new landscape, teachers will be able to enhance the quality of language teaching and learning today.

2. TRANSFORMING LANGUAGE TEACHING: TECHNOLOGICAL INNOVATION

As previously discussed, language teaching has undergone a significant transformation in recent decades, driven by the incorporation of emerging technologies that have redefined pedagogical methods and strategies. This evolution responds to the need to adapt education

to an increasingly digitalized world, where technological competencies have become essential for communication and learning. In the current educational context, ICT plays an outstanding role. These tools offer opportunities to create more dynamic and interactive learning environments while providing access to authentic resources and fostering student autonomy. Additionally, globalization has led to an increasing demand for communicative skills in multiple languages, prompting educational institutions to reassess and update their approaches (Toalombo et al. 9).

Among the most influential methodologies and technologies in this field we find mobile applications and online platforms. Tools such as Duolingo, Babbel, and Rosetta Stone have proven effective for vocabulary acquisition, grammar learning, and conversation skills in multiple languages. These platforms offer structured content in progressive levels, allowing personalized learning according to the user's pace and needs. An interesting feature is the immediate feedback they provide. Through advanced algorithms, they can identify errors and suggest real-time corrections, reinforcing memorization and improving linguistic accuracy. Despite their advantages, learning through applications has some limitations. The lack of human interaction and the reliance on predefined structures may hinder conversational fluency and spontaneity in communication. Therefore, it is recommended to complement their use with immersive experiences and live classes.

On the other hand, Virtual Reality (VR) and Augmented Reality (AR) are redefining language teaching by providing immersive learning experiences. Through interactive simulations, students can practice real-life situations such as ordering food in a restaurant, traveling abroad, or attending a job interview in another language. Virtual environments offer a safe space for practice, fostering their confidence. Besides, using avatars and interactive scenarios enhances pronunciation and listening comprehension through voice recognition and automated assessment. By simulating authentic experiences, these technologies contribute to the intuitive acquisition of linguistic structures (Valero-Franco and Berns 170). An example of this technology is Mondly VR, an application that allows interaction with virtual speakers in different contexts. However, access to these technologies can be challenging, as VR and AR devices can be costly and are not always available in all educational institutions.

Artificial Intelligence (AI) has revolutionized language teaching by personalizing learning experiences. AI-based platforms can analyze student performance and tailor content according to their progress, offering specific exercises to reinforce areas of difficulty (Belda-Medina and Calvo-Ferrer 4). Conversational chatbots are among the most prominent applications. These programs enable practice in an interactive environment and provide feedback on pronunciation and grammar. For instance, ChatGPT, Speak, and Elsa Speak use

advanced language models to facilitate natural interactions and assess users' progress in real-time. Moreover, AI facilitates the creation of dynamic educational content through the automatic generation of exercises, writing style analysis, and real-time translation, expanding the possibilities for learning and teaching. Nevertheless, the use of AI in education raises ethical and pedagogical concerns. It should be used as a complement to traditional teaching rather than a replacement for human interaction in the classroom (Sánchez Bolívar et al. 7).

Gamification, in turn, increases motivation and concept retention. By incorporating game elements such as points, levels, rewards, and challenges, students engage more actively in their learning process (Arrieta Castillo and Onieva Lupiáñez 195). Tools like Kahoot!, Quizlet, and FluentU are effective for reinforcing vocabulary and grammar in an interactive way (Spataro et al. 209; Barahona Mora 59).

Despite the positive aspects that these technologies bring to the field, they also present certain challenges. Regarding the digital divide, not all students have equal access to devices and high-quality internet, which can create disparities in learning. Teacher training is also essential, as educators must receive adequate training to use technological tools effectively and adapt them to their teaching methodologies. Additionally, balancing technology use with traditional methods is determining to avoid over-dependence and ensure the development of fundamental skills. Data protection is another key issue, especially when using online platforms that collect personal information.

Furthermore, various authors have contributed valuable perspectives on the integration of technology in language teaching. Guichon (15) presents a methodology for designing multimedia materials that facilitate learning. Narcy-Combes (37) proposes an action-research approach to language didactics, analyzing how ICT can improve teaching and learning. Repede (137), in their research on implementing the ECO (Explore, Create, Offer) method in Spanish language teaching, examines how innovative methodologies can enhance language comprehension and use, highlighting the importance of adapting teaching strategies to student needs. Macías Borrego (966) investigates how the first language influences second language learning and how technology can help identify and correct common errors in this process. Finally, Muñoz-Basols et al. (20) provide an overview of current research and didactic strategies on using technology in Spanish language teaching, emphasizing social justice and artificial intelligence in this context.

Lastly, it is important to highlight that the continuous evolution of technology promises to introduce new tools and approaches in language teaching. Collaboration among educational institutions, technology developers, and pedagogy experts will be essential to designing effective and accessible solutions for all students.

3. WHAT TO TEACH? TRADITIONAL AND DIGITAL LINGUISTIC COMPETENCIES

Language teaching has traditionally focused on developing linguistic competencies such as reading, writing, speaking, and communicative interaction. However, the rise of technology has led to the need to incorporate digital competencies that allow students to function in virtual environments and make the most of digital tools for language learning.

Traditional linguistic competencies have been widely studied by various authors and remain fundamental in foreign language teaching. Canale and Swain (8) introduced the concept of communicative competence, dividing it into four components: grammatical, sociolinguistic, discourse, and strategic competence. These allow learners to understand the structure of a language and use it effectively in different communication contexts. Similarly, Hymes (269) emphasized the importance of appropriate language use in social situations. Krashen (30) highlighted natural language acquisition and the need for comprehensible exposure to the target language, influencing methodologies centered on immersion and the use of authentic materials.

With the incorporation of ICT in education, new essential competencies for language learning have emerged, including digital literacy, the ability to evaluate online information, and the use of tools for communication and content production. In this context, Prensky (1) coined the term digital natives to refer to students who have grown up with technology and require a different teaching approach. Digital competence involves handling devices and platforms as well as critically and ethically using information online (Ferrari 29). Additionally, ensuring media literacy and digital security has become vital today (Caena and Redecker 358).

One of the current challenges is balancing traditional and digital competencies to meet learners' needs. One strategy is Blended Learning, which combines face-to-face instruction with digital tools. Studies such as those by Garrison and Vaughan (85) state that this approach leverages the benefits of in-person interaction and the flexibility of online resources. Also, AI is gaining ground, with tools such as AI-based writing assistants complementing written expression development by providing instant feedback on grammar and style (Godwin-Jones 11). But careful implementation is necessary to avoid over-reliance on technology and encourage critical thinking (Warschauer and Xu 2).

Therefore, as highlighted throughout the previous sections, language teaching has undergone a transformation towards student-centered models, where communication and contextual learning play a decisive role. The following section explores the innovative methodologies that are shaping this landscape.

4. HOW TO TEACH? ACTIVE METHODOLOGIES

First, it is essential to mention Project-Based Learning (PBL), which engages students in active learning through problem-solving in real-world contexts via research and collaboration. This approach develops linguistic skills in authentic settings, facilitating meaningful and real communication while fostering experiential learning, where students must apply their knowledge to real-life situations. According to Beckett and Miller (37), PBL enhances motivation and knowledge retention by engaging students in projects with practical applications. It promotes the practice of linguistic skills by integrating speaking, listening, reading, and writing in the target language within a single task. To implement this approach effectively, educators must ensure that projects are sufficiently structured to encourage learning while remaining flexible enough to allow for creativity and student autonomy. It should be noted that assessing learning outcomes in this methodology can be more complex, as it is not solely based on exams but also on the development of communicative and collaborative skills (Thomas 7).

On the other hand, personalized learning has gained relevance, particularly due to the impact of AI. Adaptive systems enable learners to progress at their own pace by adjusting content to their needs and proficiency levels. Also, tools such as chatbots and virtual assistants prove useful for practicing language skills in an interactive environment (Polakova and Klimova 2; Wu and Yu 13).

Task-Based Language Teaching (TBLT), in turn, is an approach that prioritizes communication and the functional use of language. It proposes that students engage in authentic tasks in the target language (Ellis 5), such as planning a trip, conducting an interview, or writing a formal email. Willis and Willis (51) emphasize that TBLT fosters more meaningful learning, as it requires learners to use the language for communicative purposes. This method is particularly effective in second language teaching since it simulates real-life situations and encourages students to solve linguistic challenges naturally.

Another innovative methodology is Flipped Learning, which transforms the traditional teaching model by shifting direct instruction outside the classroom and dedicating in-class time to practical and interactive activities. In language teaching, this means that students can study grammar and vocabulary at home through videos or readings, while classroom time with the teacher is used for communicative practice through debates, role-playing, or group discussions (Bergmann and Sams 35).

Gamification is another strategy that incorporates game elements into learning to enhance student motivation and engagement. Tools such as Duolingo, Kahoot!, and Quizlet have popularized this approach in language teaching, allowing students to learn in a more

interactive and enjoyable way. According to Deterding et al. (11), gamification promotes learning by encouraging healthy competition, providing immediate feedback, and establishing clear goals. Furthermore, students tend to develop greater confidence in their language use (Werbach and Hunter 12). However, it is necessary that gamification goes beyond superficial elements such as rewards or points and is meaningfully integrated into the teaching process.

5. WHEN TO TEACH? THE USE OF TECHNOLOGY ACCORDING TO EDUCATIONAL LEVELS

The impact of technology in education varies depending on the educational level in which it is implemented. From Primary Education to Higher Education, technological tools must be adapted to the cognitive and pedagogical needs of students, ensuring effective integration into the learning process. In this regard, it is necessary to analyze how these tools can be optimized at each stage, from childhood to adulthood.

In Primary Education, the use of technology should be oriented towards interactive and playful learning, fostering curiosity and creativity. One of the greatest benefits at this stage is the development of socio-emotional skills. Games and interactive platforms play a positive role in promoting collaboration, problem-solving, and empathy. According to Fleer (45), children who engage in interactive digital activities perform better in tasks requiring teamwork, as they learn to communicate and resolve conflicts effectively.

Some of the most commonly used technologies at this level include:

- Interactive learning platforms: tools like Seesaw and Epic! allow to explore concepts through visual and auditory activities. These applications provide instant feedback, helping teachers tailor instruction to each student's needs.
- Gamification applications: the use of digital games in the classroom has shown positive effects on student motivation and engagement. Programs such as Osmo and Prodigy integrate physical activities with technology, facilitating reading instruction through interactive experiences.
- Voice-assisted learning tools: devices like Alexa for Kids are used to improve reading and pronunciation by offering interactive exercises that enhance oral and written comprehension.

In Secondary Education, technology plays an important role in fostering student autonomy, as it provides access to a wide range of resources and promotes self-directed learning. Nevertheless, for ICT to be effective, they must be integrated into pedagogical strategies that enhance critical thinking, collaboration, and the resolution of complex problems (Selwyn

37). At this level, students begin developing more advanced analytical and argumentative skills, making it essential to use technology to support deeper learning.

Some of the most frequently used tools include:

- Learning management platforms: Google Classroom, Edmodo, and Microsoft Teams improve task management, interaction between students and teachers, and online collaboration.
- Research and critical thinking tools: Khan Academy, Wolfram Alpha, and Google Scholar provide access to reliable information and help students develop research skills.
- Foreign language learning platforms: Babbel and Busuu facilitate autonomous learning through interactive exercises and conversations with native speakers, demonstrating that such platforms enable personalized learning and improve student assessment (Mora Mera et al. 6412).
- Virtual labs and simulations: PhET Interactive Simulations allow to explore scientific concepts in a visual and interactive manner, also contributing to language learning for specific purposes related to science.

In Higher Education, technology enables access to a broader range of educational resources and the creation of hybrid and personalized learning environments. Its incorporation enhances accessibility and flexibility while fostering global collaboration and knowledge networking.

Some of the most relevant trends include:

- Mobile learning and MOOCs: platforms such as Coursera, edX, and Udemy provide access to online courses taught by universities, facilitating self-paced learning.
- Big Data and AI in education: Learning Analytics, for example, analyzes learning patterns and offers personalized recommendations (Siemens 1386).
- Conversation simulators and language exchange tools: Tandem and HelloTalk support real-time language practice with native speakers, enhancing communicative competence.
- Immersive learning environments: Virtual Reality (VR) and Augmented Reality (AR) contribute to learning experiences across various disciplines, particularly in language learning (Huang et al. 4641).

Digital tools are enhancing access to educational resources, promoting innovative and personalized methodologies. However, despite this situation, this transformation also presents challenges, such as the digital divide and teacher training, which have been previously mentioned. The following section will further explore these challenges, as well as the opportunities that technology offers to improve teaching and learning processes.

6. OVERCOMING CHALLENGES AND SEIZING OPPORTUNITIES

Despite advances in the field under discussion, the digital divide remains a significant obstacle to educational equity. According to Van Deursen and Van Dijk (511), there is a considerable disparity in access to technology that can lead to unequal opportunities. This issue is particularly severe in developing countries and rural communities, where internet access and digital devices are limited. It also manifests in digital skills. As Helsper and Reisdorf (1256) point out, digital literacy is essential for reducing this gap, as mere access is not sufficient; learners must also know how to use these tools effectively for educational purposes. To address this issue, various organizations and governments have implemented strategies. These include connectivity initiatives, such as the Information for All Programme (UNESCO 2024), which aims to support UNESCO Member States in designing and implementing national information policies and knowledge strategies in the global ICT context. Another example is the distribution of digital devices through initiatives like One Laptop per Child (MIT Media Lab 2006), which provides students with electronic devices to facilitate learning.

Moreover, Technological Pedagogical Content Knowledge (TPACK) is key for teachers to effectively integrate digital tools into their classrooms (Mishra and Koehler 1022). But many teacher training programs still do not include the development of these competencies as part of their curriculum. To overcome this challenge, several strategies have been proposed, such as continuous professional development courses. Initiatives like Google for Education and Microsoft Educator Center offer free training programs. Additionally, mentorship models between technologically experienced teachers and those with less expertise help facilitate the adoption of new teaching techniques. According to Darling-Hammond et al. (35), educators learn best when they have opportunities to apply new methodologies in real teaching environments.

However, technology has created new opportunities for innovation. One of the key benefits is accessibility. As Cavanaugh et al. (5) highlight, technology provides access to a wide range of educational resources, eliminating physical and geographical barriers. Online learning platforms such as Moodle, Blackboard, and Google Classroom have contributed to the distribution of educational materials and the interaction between teachers and students worldwide. Also, technology has promoted personalized learning, allowing instruction to be tailored to individual student needs.

Another major advantage is the enhancement of collaboration. Tools such as Microsoft Teams, Zoom, and Google Meet support teamwork, even in remote environments. According to Hrastinski (80), online collaboration fosters more interactive learning, enabling students to share ideas and solve problems collectively, regardless of their geographical location.

Furthermore, the expansion of distance learning has proven to be a viable alternative to face-to-face education. Hodges et al. (7) emphasize that, when properly implemented, online education can be just as effective as traditional learning, allowing students to receive instruction flexibly and access a wide range of multimedia resources. Besides, the hybrid learning model, which combines in-person and virtual instruction, has gained popularity, especially following the COVID-19 pandemic. This approach offers the best of both worlds, balancing face-to-face interaction with the flexibility of digital learning (Graham 16).

7. CONCLUSIONS

The integration of digital tools into language teaching has led to a profound transformation, combining traditional methods with essential technological skills required in today's society. This process goes beyond a mere curricular update; it involves the adoption of participatory and collaborative methodologies that facilitate meaningful and contextualized learning. On the one hand, students interact with online resources, use educational applications and software, and learn to evaluate and manage information available on the internet. On the other hand, through methodologies such as PBL, Flipped Classroom, and Gamification, they construct knowledge through practical and collaborative activities. Another key aspect highlighted throughout this study is that the integration of technology into the classroom requires continuous professional development for teachers. As a result, teacher training emerges as a fundamental pillar for leveraging the potential of digital tools and enhancing educational quality. In this regard, the use of technology varies depending on the educational level. In Primary Education, interactive applications that combine play and learning stimulate curiosity and develop socio-emotional skills. In Secondary Education, digital resources reinforce language proficiency through debates and collaborative tasks, fostering analysis and argumentation. In Higher Education, technology plays a relevant role in hybrid and personalized learning models, where online courses, simulators, and adaptive systems promote autonomous and flexible learning tailored to each student's needs. But this evolving landscape also presents several challenges. The digital divide, characterized by unequal access to devices and high-quality internet connectivity, restricts learning opportunities and exacerbates disparities among students. Additionally, the growing use of digital tools raises concerns regarding data protection and privacy, among other issues.

Despite these challenges, the digital transformation in language teaching represents an opportunity to renew the educational process. It enhances the quality of learning and prepares students to face the challenges of the professional and social world in the digital era. This shift marks a turning point, driving a lasting revolution in education.

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