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Innovative Approaches to Teaching French as a Foreign Language in the Digital Age: Toward Interactive Pedagogy

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ABSTRACT

The digital transformation of education presents both challenges and opportunities for teaching French as a Foreign Language (FFL). Traditional pedagogical models centered on grammar instruction, rote memorization, and print-based materials are increasingly incompatible with the dynamic, multimodal expectations of 21st-century learners. This explores innovative approaches to FFL instruction that leverage digital tools to foster interactive pedagogy, learner engagement, and communicative competence. Grounded in current research on language acquisition, educational technology, and constructivist pedagogy, this highlights how digital media can enhance the teaching and learning of French through interactivity, personalization, and immersion. Key strategies examined include the integration of virtual learning environments (VLEs), mobile applications, gamified learning platforms, and authentic multimedia content (e.g., podcasts, online videos, digital storytelling). These tools enable students to practice listening, speaking, reading, and writing in ways that are context-rich and learner-centered while fostering autonomy and motivation. This also investigates collaborative learning models, such as online discussion forums, language exchange platforms, and project-based tasks using digital tools like Padlet or Google Workspace. Particular attention is paid to the pedagogical benefits of real-time feedback, adaptive learning systems, and cultural immersion through virtual exchange programs and interactive simulations.

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In addition to outlining technological tools, this emphasizes the importance of pedagogical design not merely digitizing content but rethinking instructional strategies to support learner interaction, critical thinking, and language application in authentic contexts. It also addresses the digital divide, emphasizing the need for inclusive practices that consider varying levels of technological access and digital literacy. Ultimately, this advocates for a paradigm shift toward interactive, multimodal, and inclusive pedagogies in FFL education, arguing that digital innovation, when aligned with sound instructional principles, can significantly enrich language learning outcomes in diverse educational contexts.

Keywords: Innovative approaches, Teaching French, Foreign language, Digital age, Interactive pedagogy.

1. INTRODUCTION

The teaching of French as a Foreign Language (FFL) has undergone significant transformation over the past several decades, evolving from rigid, grammar-centric methodologies to more communicative, learner-centered paradigms (Adenuga and Okolo, 2021; Adenuga *et al.*, 2020). Traditionally, FFL instruction was grounded in structuralist and behaviorist theories that emphasized repetitive drilling, grammatical precision, and translation exercises (Adenuga *et al.*, 2019; Oyedele *et al.*, 2020). These methods, often facilitated through standardized textbooks, prioritized linguistic accuracy over contextual relevance or communicative competence. While such approaches laid the foundation for formal language learning, they frequently neglected the socio-cultural and interactive dimensions critical to real-world language use (Oyedele *et al.*, 2021).

In the digital age, however, the profile and expectations of language learners have changed dramatically. Contemporary learners, particularly at the secondary and tertiary levels, are increasingly shaped by digital technologies, globalized communication, and multimodal literacies (Oyedele *et al.*, 2022; Ayobami *et al.*, 2023). They tend to seek educational experiences that are interactive, personalized, and applicable to real-life contexts. Access to digital media, online communities, and mobile applications has redefined how learners engage with language, demanding instructional models that reflect these shifts (Githinji and Nyangoma, 2022; Ayobami *et al.*, 2023). Moreover, today's students are not merely passive recipients of content but active participants in constructing and navigating meaning across various digital platforms (Githinji and Nyangoma, 2022; Nyangoma *et al.*, 2023).

This evolving educational landscape exposes the limitations of traditional FFL instruction. Grammar-heavy, textbook-based approaches often fail to captivate modern learners or meet the diverse needs of global classrooms. These methods can result in disengagement, rote memorization, and a lack of practical language application (Githinji and Nyangoma, 2023; Nyangoma *et al.*, 2023). Furthermore, they may overlook opportunities for intercultural exploration and autonomous learning key components of meaningful language acquisition in the 21st century (Githinji and Nyangoma, 2023; Nyangoma *et al.*, 2023).

The purpose of this review is to explore how digital tools and interactive pedagogy can enhance the teaching and learning of FFL. It examines how technology-integrated strategies, such as virtual learning environments, gamification, mobile apps, and collaborative online platforms, support language acquisition through authentic, learner-centered engagement. This inquiry is informed by theoretical perspectives in constructivism, sociocultural learning, and task-based language teaching, all of which emphasize the importance of interaction, context, and learner autonomy.

The scope of this investigation is focused specifically on secondary and tertiary educational contexts, where FFL programs are increasingly diverse in terms of learner demographics, language goals, and technological access. In these settings, the integration of digital pedagogy is not only pedagogically desirable but also strategically necessary to keep pace with learners' evolving needs and global communication demands.

The significance of this review lies in its potential to inform and guide educational practices that are more inclusive, interactive, and effective. By aligning instructional methods with the technological and cognitive preferences of modern learners, educators can enhance motivation, autonomy, and communicative competence three pillars essential to successful language acquisition. Ultimately, this work advocates for a reimagined FFL pedagogy that leverages the affordances of digital innovation to promote deeper learning, intercultural understanding, and lifelong language use in increasingly interconnected societies (Githinji and Nyangoma, 2023; Nyangoma *et al.*, 2022).

2. METHODOLOGY

The PRISMA methodology was applied to conduct a systematic review of literature on innovative approaches to teaching French as a Foreign Language (FFL) in the digital age, with an emphasis on interactive pedagogy. The review process followed four main phases: identification, screening, eligibility, and inclusion.

In the identification phase, a comprehensive search was conducted across multiple academic databases, including ERIC, JSTOR, Scopus, Web of Science, and Google Scholar. Keywords used in the search strategy included “French as a Foreign Language,” “digital pedagogy,” “interactive language learning,” “technology-enhanced language instruction,” and “online French teaching.” Boolean operators and truncation were used to refine the results and capture variations of the terms. The search yielded a total of 942 records published between 2010 and 2024.

During the screening phase, duplicates were removed, and the remaining 738 studies were assessed based on titles and abstracts. Articles that did not focus on French language education or digital instructional strategies were excluded. This resulted in 192 studies retained for full-text review.

In the eligibility phase, inclusion criteria were applied: (1) empirical studies or systematic reviews focusing on secondary or tertiary FFL education, (2) use of digital or interactive pedagogical tools, (3) published in peer-reviewed journals or academic conference proceedings, and (4) written in English or French. Exclusion criteria included studies centered solely on first language acquisition, theoretical papers without pedagogical application, and reports lacking methodological transparency. After applying these criteria, 68 articles were deemed eligible.

The inclusion phase resulted in 42 high-quality studies selected for synthesis. These studies were analyzed thematically to extract key insights into digital tool adoption (e.g., apps, learning platforms), interactive methodologies (e.g., project-based learning, gamification), and learner outcomes (e.g., motivation, communicative competence). The PRISMA framework ensured a rigorous and transparent approach to capturing the current landscape of digital innovation in FFL pedagogy.

2.1. Theoretical Framework

The implementation of innovative, interactive approaches in French as a Foreign Language (FFL) instruction is grounded in an evolving body of educational theory. These theoretical underpinnings guide the design, integration, and assessment of digital tools and learner-centered methodologies that aim to improve language acquisition outcomes. The key frameworks informing this pedagogical shift include constructivist and sociocultural approaches, digital pedagogy, and communicative and task-based language teaching (TBLT). Together, they emphasize the importance of social interaction, contextualized learning, and meaningful engagement, particularly within technology-mediated environments (Nyangoma *et al.*, 2022; Nyangoma *et al.*, 2023).

Rooted in the works of Piaget, Bruner, and Vygotsky, constructivist learning theory posits that learners actively construct knowledge through experience and interaction. Rather than passively receiving information, learners engage in meaning-making processes that are influenced by their prior knowledge, context, and goals. In the context of FFL, this implies that language is not acquired in isolation but through immersion in communicative, purposeful activities. Bruner's notion of "scaffolding" further highlights the role of instructional support, which can be delivered through technology-enabled feedback, peer interaction, or guided learning environments (Adenuga *et al.*, 2024; Akintayo *et al.*, 2024).

Building on constructivism, Vygotsky's sociocultural theory emphasizes the inherently social nature of learning. Language development occurs through social mediation and collaboration within the learner's Zone of Proximal Development (ZPD). In FFL instruction, this theory supports collaborative tasks, peer feedback, and teacher-facilitated interactions elements that are easily enabled through digital platforms (Adenuga *et al.*, 2024; Mouboua *et al.*, 2024). The integration of forums, chats, and virtual group work into language curricula facilitates social interaction and collaborative knowledge construction, aligning closely with these theoretical principles.

Digital pedagogy refers to the informed use of digital technologies to support teaching and learning. It is not limited to the digitization of content but involves a reimagining of pedagogy to exploit the unique affordances of digital media such as interactivity, multimodality, and real-time feedback. In FFL instruction, digital pedagogy emphasizes authentic, learner-centered experiences supported by multimedia content (videos, podcasts, games), virtual environments, and mobile applications.

Key principles of digital pedagogy include accessibility, engagement, and multimodal learning. These principles align with contemporary theories of multiple intelligences and universal design for learning (UDL), which advocate for varied modes of content delivery and learner expression. Through multimodal engagement combining text, audio, video, and interactivity, FFL students are exposed to a rich linguistic input that mirrors real-world communication. For example, learners might use a video blog to practice oral production, engage in vocabulary quizzes on mobile apps, or interact with native speakers through virtual exchanges, each supporting different aspects of language acquisition (Ajuwon *et al.*, 2024; Atobatele *et al.*, 2024).

Digital tools also enable personalization and adaptive learning, aligning instruction with individual learner pace and needs. Artificial intelligence-powered platforms offer grammar corrections, pronunciation tips, and content recommendations, fostering learner autonomy and targeted skill development. These digital affordances support a shift from teacher-centered to learner-centered instruction, reinforcing the constructivist and sociocultural foundations of modern language pedagogy.

Communicative Language Teaching (CLT) and Task-Based Language Teaching (TBLT) serve as complementary frameworks that prioritize real-life communication and meaningful use of language. CLT emphasizes fluency, interaction, and functional language skills over rote grammar instruction. TBLT builds on these principles by organizing instruction around authentic tasks such as making travel plans, conducting interviews, or participating in debates that require learners to use the target language to achieve specific goals (Mouboua *et al.*, 2024; Atobatele *et al.*, 2024).

In a digitally mediated FFL environment, these tasks can be enhanced through technology. Students might collaborate on a Google Doc to create a travel itinerary in French, record a podcast discussing environmental issues, or participate in a role-play via video conferencing. These activities promote language use in context, reflecting the complexity and unpredictability of real-world communication. Additionally, technology facilitates immediate feedback, language recycling, and authentic audience interaction, all of which contribute to deeper learning and retention.

By grounding innovative FFL instruction in constructivist, sociocultural, digital, and task-based pedagogical frameworks, educators can design dynamic, responsive learning experiences that are both pedagogically sound and technologically current. These theoretical models collectively support a vision of language learning as an active, interactive, and transformative process, ideally suited to the demands of the digital age (Awoyemi *et al.*, 2024; Adenuga *et al.*, 2024).

2.2. Digital Tools for Interactive FFL Instruction

The integration of digital tools into French as a Foreign Language (FFL) instruction has revolutionized traditional language learning paradigms, replacing static, text-based methods with dynamic, interactive, and learner-centered approaches. Key technological platforms ranging from Virtual Learning Environments (VLEs) and Learning Management Systems (LMS) to mobile applications, gamification tools, and multimedia content have collectively enhanced the accessibility, engagement, and authenticity of language instruction, as shown in figure 1 (Akintayo *et al.*, 2024; Nyangoma *et al.*, 2025). These tools serve as essential components of interactive pedagogy, facilitating real-time communication, personalized learning, and immersive exposure to the Francophone world.

Virtual Learning Environments (VLEs) and Learning Management Systems (LMS) platforms such as Moodle, Google Classroom, and Canvas provide comprehensive digital infrastructures for organizing, delivering, and monitoring FFL instruction. These platforms support various forms of interaction and content delivery, including video conferencing, quizzes, collaborative documents, and discussion forums. Moodle, for instance, allows educators to create sequential learning modules integrating grammar lessons, vocabulary exercises, and communicative tasks. Interactive elements such as self-check quizzes, embedded multimedia, and peer-reviewed writing tasks foster learner autonomy and immediate feedback (Atobatele *et al.*, 2024; Awoyemi *et al.*, 2024).

Google Classroom and Canvas extend these functions with user-friendly interfaces and seamless integration of external tools like YouTube, Padlet, or Google Forms. They facilitate a blended learning environment where students can access resources asynchronously while participating in synchronous language activities. These systems also support differentiated instruction, enabling teachers to assign tasks based on proficiency levels, track progress through analytics, and maintain communication with students outside classroom hours. This holistic functionality promotes a student-centered, flexible learning experience essential in modern FFL contexts.

Mobile applications have further expanded the boundaries of FFL instruction by introducing gamified learning and on-the-go practice. Platforms like Duolingo, Quizlet, Kahoot, and Babbel use game-based mechanics such as points, levels, streaks, and leaderboards to enhance motivation and engagement. These tools cater to diverse learning styles by incorporating visual aids, audio recordings, and interactive exercises that target vocabulary acquisition, pronunciation, grammar, and sentence formation (Atobatele *et al.*, 2024; Awoyemi *et al.*, 2024).

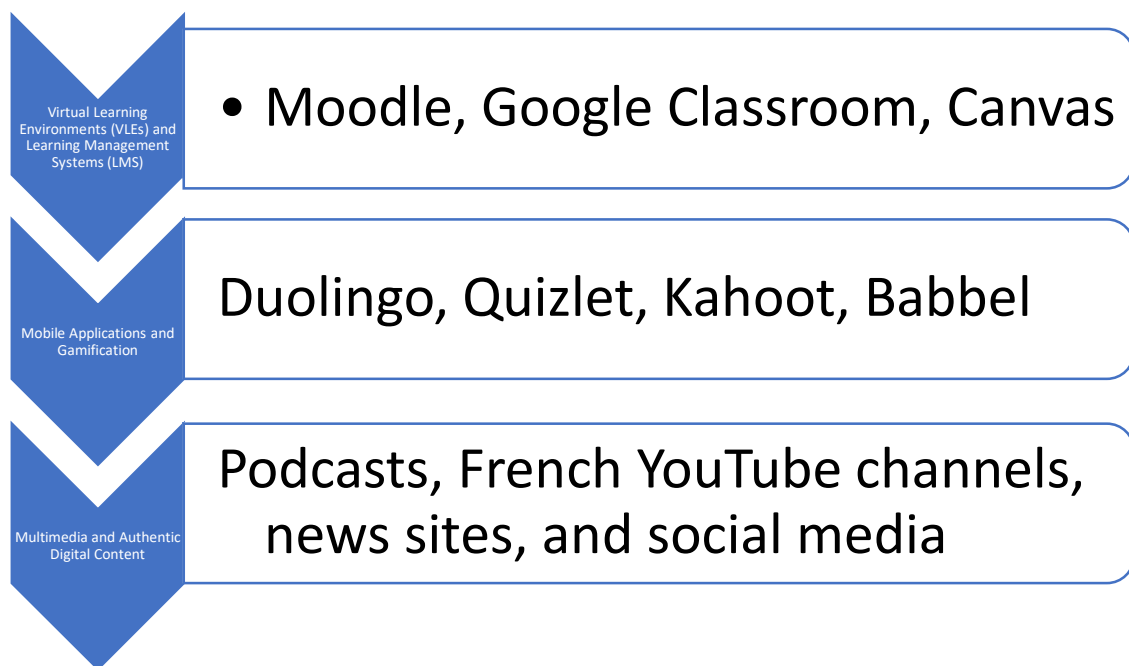


Figure 1. Digital Tools for Interactive FFL Instruction.

Duolingo, one of the most popular language learning apps, offers scaffolded lessons structured into thematic modules, allowing learners to progress at their own pace. The app's adaptive feedback mechanism ensures that learners receive real-time correction and reinforcement. Similarly, Quizlet enables learners to create and share digital flashcards and participate in games that reinforce word recognition and spelling. Kahoot, primarily used in classroom settings, transforms vocabulary and grammar drills into competitive quizzes that promote collaborative learning and peer interaction.

Babbel takes a more structured approach, combining short dialogues, grammar explanations, and cultural notes. Its emphasis on real-life communication situations makes it particularly useful for developing conversational skills. Collectively, these apps extend language learning beyond the classroom, offering ubiquitous access, frequent practice opportunities, and personalized learning trajectories, which are vital for sustained engagement and language retention (Mouboua *et al.*, 2024; Atobatele *et al.*, 2024).

Incorporating authentic multimedia content is a powerful strategy for promoting real-world language exposure and cultural immersion. French-language podcasts, YouTube channels, news websites, and social media platforms serve as rich resources for developing listening comprehension, expanding vocabulary, and enhancing cultural awareness (Hassa, 2023; Yarmanov, 2024). These tools expose learners to native speaker accents, idiomatic expressions, and varied discourse styles elements often absent from traditional textbooks.

For example, podcasts such as *Journal en français facile* (RFI) or *Coffee Break French* offer leveled listening material that includes transcript support and cultural commentary. French YouTube creators like *Cyprien*, *Natoo*, or *Nota Bene* produce entertaining and informative content that resonates with young audiences while showcasing informal speech and contemporary cultural references. Similarly, news outlets like *Le Monde*, *TV5Monde*, or *France 24* offer up-to-date reporting and multimedia features suitable for intermediate and advanced learners.

Social media platforms Instagram, TikTok, and Twitter also provide opportunities for authentic engagement through short-form videos, comments, hashtags, and memes. Teachers can curate content or encourage students to follow Francophone influencers, participate in trends, and even create their own digital productions in French (Atobatele *et al.*, 2024; Githinji and Nyangoma, 2025). This approach enhances not only linguistic competence but also digital literacy and intercultural sensitivity, essential skills in a globalized communication landscape.

The use of digital tools in FFL instruction reflects a paradigm shift toward interactive, multimodal, and learner-centered pedagogy. By integrating VLEs and LMSs for structured engagement, mobile apps for personalized practice, and multimedia content for cultural immersion, educators can create dynamic learning environments that align with contemporary learner needs (Bang, 2024; Saboktakin, 2024). These tools not only enrich language acquisition but also foster autonomy, motivation, and real-world communicative competence hallmarks of effective 21st-century language education.

2.3. Pedagogical Strategies for Interactivity

The integration of digital tools into French as a Foreign Language (FFL) instruction must be guided by pedagogical strategies that maximize their potential for interaction, engagement, and meaningful learning (Nyangoma *et al.*, 2024). Interactivity in language learning is not solely a function of the tools employed, but of how they are embedded within collaborative, task-based, and personalized learning frameworks, as shown in figure 2. These strategies promote learner autonomy, critical thinking, and communicative competence by mirroring real-life language use and supporting diverse learner needs. Three key approaches collaborative learning, project-based and task-based activities, and personalized/adaptive instruction offer a comprehensive framework for fostering interactivity in the digital FFL classroom.

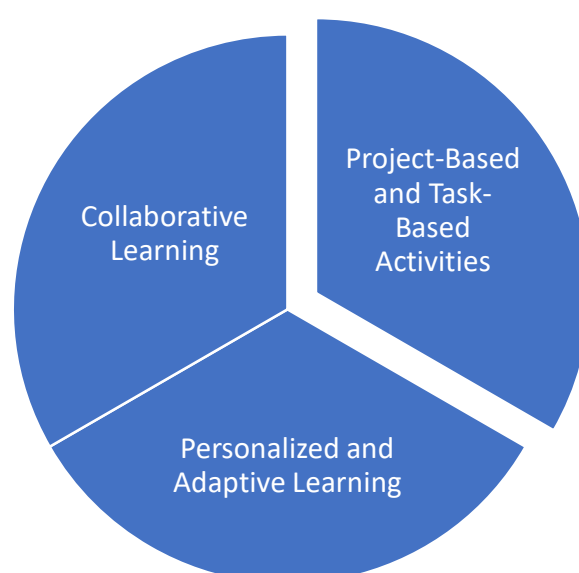


Figure 2. Pedagogical Strategies for Interactivity.

Collaborative learning leverages peer-to-peer interaction as a central component of language acquisition (Shaddad and Jember, 2024; Lyu *et al.*, 2024). Rooted in Vygotsky's sociocultural theory, collaborative strategies facilitate co-construction of meaning and scaffolded support within the learner's Zone of Proximal Development (ZPD). In digital environments, collaboration can be effectively facilitated through tools such as online forums, peer editing platforms, Padlet, and Google Docs.

Online forums, embedded in platforms like Moodle or Canvas, allow learners to participate in asynchronous discussions on thematic prompts, enhancing written expression and critical reflection. Peer editing exercises, where students provide feedback on each other's compositions using tools like Google Docs' comment function, encourage metalinguistic awareness and foster a supportive learning community.

Padlet, an interactive virtual board, allows for brainstorming, multimedia sharing, and collaborative annotation of texts or videos, enabling learners to engage with content in visually stimulating ways (Park *et al.*, 2023; Wahidin *et al.*, 2024). These tools create a digital ecosystem where collaborative dialogue, feedback exchange, and joint task completion are central to the learning process.

Project-Based Learning (PBL) and Task-Based Language Teaching (TBLT) are instructional models that engage learners in extended, meaningful tasks requiring the active use of French (Ennis *et al.*, 2022; Chen, 2024). These approaches align well with digital technologies that enable students to research, produce, and present content in multimodal formats. Common examples in FFL instruction include digital storytelling, virtual tours, and online interviews.

Digital storytelling tasks prompt learners to create narrated slideshows, videos, or podcasts on cultural themes, personal experiences, or fictional scenarios (Nyangoma *et al.*, 2024). This fosters integrated language skills writing scripts, practicing pronunciation, and performing oral narration while also building creativity and digital fluency. Virtual tours, often created with tools like Google Earth or ThingLink, allow students to design guided tours of Francophone cities or historical sites, incorporating vocabulary related to geography, architecture, and travel. Online interviews, conducted with native speakers or classmates, simulate authentic communication and develop interpersonal skills. These projects engage learners cognitively and emotionally, increasing language retention, motivation, and real-world language use.

Personalized learning refers to the tailoring of instruction to meet individual learners' needs, interests, and proficiency levels, while adaptive learning uses technology to dynamically adjust content based on learner performance. Digital FFL classrooms increasingly utilize AI-driven feedback tools, learner analytics, and differentiated tasks to support these strategies (Muthmainnah *et al.*, 2024; Rapti and Panagiotidis, 2024).

AI tools such as chatbots, speech recognition systems, and intelligent tutoring systems provide real-time, individualized feedback on grammar, vocabulary, and pronunciation. This enables learners to self-correct and progress at their own pace. For example, applications like Babbel and Mondly incorporate adaptive algorithms that adjust the difficulty of exercises based on user input. Learner analytics available in platforms like Moodle or Canvas allow instructors to monitor engagement, track progress, and identify areas for intervention, informing the design of differentiated assignments tailored to specific learner needs (Liu *et al.*, 2019; Liu, 2025).

Furthermore, personalized digital portfolios and self-assessment tools can support metacognitive reflection, encouraging learners to set goals, monitor their development, and take ownership of their learning journey (Yang *et al.*, 2023; Yadav, 2024). Such strategies enhance learner autonomy, engagement, and long-term motivation, particularly in diverse and multilingual classrooms.

Pedagogical strategies that emphasize collaboration, contextualized task engagement, and personalization are essential to unlocking the full potential of digital tools in FFL instruction. Through collaborative learning environments, project- and task-based learning, and adaptive technologies, educators can design instruction that is interactive, inclusive, and aligned with contemporary language acquisition theories. These approaches not only improve linguistic competence but also cultivate critical digital and intercultural skills, equipping learners to communicate effectively in a globalized, digitally connected Francophone world (Nguyen *et al.*, 2022; Shamsiddin, 2024).

2.4. Benefits and Impact

The integration of interactive digital strategies in French as a Foreign Language (FFL) instruction offers a range of pedagogical and cognitive benefits that significantly enhance language learning outcomes, as shown in Figure 3 (Nyangoma *et al.*, 2024). These approaches move beyond traditional, passive modes of instruction by embedding learners in active, meaningful, and socially mediated learning experiences. The core benefits include enhanced learner engagement and autonomy, improved language skills through real-time interaction, broader access to Francophone cultures, and the development of digital and intercultural literacies, all of which contribute to a more holistic and future-ready language education.

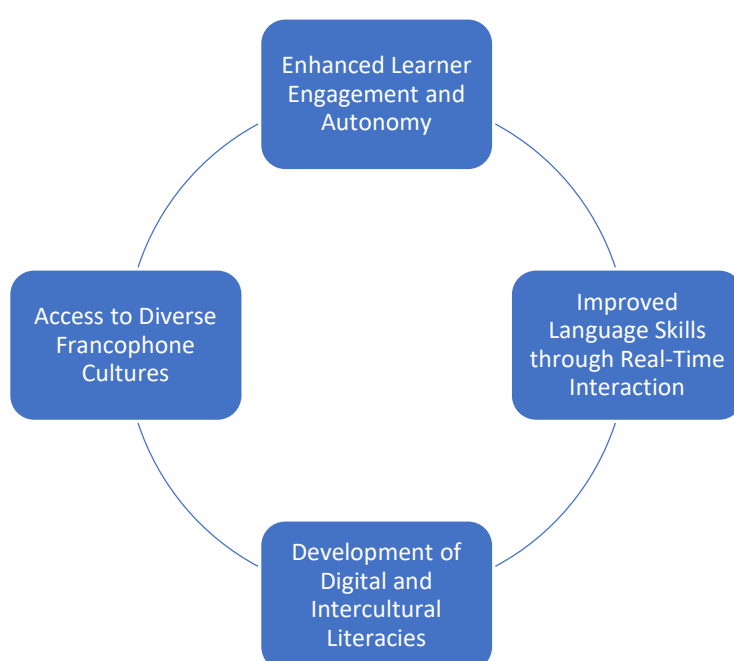


Figure 3. Benefits and Impact.

Digital technologies such as mobile apps, collaborative tools, and interactive platforms provide learners with engaging, multimodal content that supports different learning styles. Gamified learning environments and real-world tasks increase motivation by making language practice dynamic and personally relevant (Zhou, 2024; Strousopoulos and Troussas, 2024). Features such as progress tracking, instant feedback, and adaptive exercises empower learners to monitor their development and work at their own pace, thereby fostering autonomy and self-regulation. This is particularly important in secondary and tertiary education, where learners benefit from gaining control over their learning process and setting personalized goals.

Interactive digital tools enable authentic and spontaneous communication, a key component in developing fluency and communicative competence. Platforms that support synchronous and asynchronous interaction (e.g., forums, video conferencing, chatbots) create opportunities for practicing listening, speaking, reading, and writing in authentic contexts. Learners can participate in peer discussions, collaborative projects, and simulations that mirror real-life situations. Real-time feedback mechanisms, whether from AI tutors or human instructors, enhance error correction and reinforce correct usage immediately, thereby supporting language accuracy, fluency, and retention (Jeged, 2024; Izadi and Forouzanfar, 2024).

One of the most transformative aspects of digital FFL instruction is its capacity to expose learners to a broad spectrum of Francophone cultures beyond metropolitan France. Multimedia content such as videos, music, podcasts, and news articles from Africa, the Caribbean, Canada, and Southeast Asia allows learners to explore linguistic and cultural diversity within the Francophone world. This exposure fosters intercultural sensitivity, challenges Eurocentric narratives, and helps students understand how language operates within different social and historical contexts. Incorporating culturally rich digital content strengthens not only language skills but also learners' global awareness and appreciation for plurality.

In the digital age, language education must extend beyond linguistic proficiency to include digital literacy—the ability to navigate, evaluate, and create information using digital technologies. Through tasks involving multimedia production, collaborative writing, and online communication, learners gain practical digital skills applicable across academic and professional domains. Moreover, engaging with authentic cultural content fosters intercultural literacy, or the ability to interpret and mediate cultural differences effectively (Jain, 2024; Ping, 2024). These literacies are increasingly recognized as essential competencies for global citizenship and 21st-century communication.

Interactive digital pedagogy in FFL not only enhances traditional language learning but also prepares learners for complex, intercultural, and digitally mediated communication. By promoting engagement, autonomy, real-time interaction, and cultural connection, these approaches enrich the language learning experience and respond to the evolving needs of today's learners. As such, they represent not just an instructional innovation but a paradigm shift toward more inclusive, dynamic, and meaningful foreign language education (Nyangoma *et al.*, 2025).

2.5. Challenges and Considerations

While the integration of interactive digital tools into French as a Foreign Language (FFL) instruction offers numerous pedagogical benefits, it also introduces a range of challenges that must be carefully addressed to ensure equitable and effective implementation. These challenges include the digital divide and technological accessibility, teacher training and digital competence, and curriculum integration and institutional support (Afzal *et al.*, 2023; Alenezi *et al.*, 2023). A nuanced understanding of these factors is essential to optimizing digital pedagogy in FFL and fostering a learning environment that is inclusive, sustainable, and responsive to diverse learner needs.

A major barrier to widespread adoption of digital FFL instruction is the persistent digital divide, which manifests in unequal access to technology, internet connectivity, and digital resources (Nyangoma *et al.*, 2025). In both high-income and low- to middle-income contexts, disparities exist between urban and rural settings, as well as among students from different socio-economic backgrounds. Limited access to personal devices, reliable internet, or digital infrastructure can hinder participation in interactive tasks, especially those requiring synchronous communication, multimedia production, or frequent online engagement.

Moreover, even when access is available, variability in digital literacy among students can impact their ability to effectively use educational technologies. Without equitable access and support, digital FFL instruction risks exacerbating existing educational inequalities rather than alleviating them. Addressing this issue requires institutional investment in infrastructure, provision of alternative access (e.g., offline materials or device lending programs), and inclusive design strategies that accommodate a wide range of technological capabilities.

Effective implementation of interactive digital pedagogy depends heavily on teacher preparedness and competence. Many language educators, particularly those trained in more traditional paradigms, may lack the necessary technical skills or pedagogical knowledge to confidently integrate digital tools into their teaching (Wu, 2023; Bitar, N. and Davidovich, 2024). Digital competence in this context extends beyond operational knowledge of tools; it includes the ability to critically select appropriate technologies, design interactive learning experiences, manage virtual classroom environments, and assess student performance in digital contexts.

Furthermore, there is a need for professional development programs that go beyond one-time workshops and offer continuous, practice-based learning opportunities. Teachers must be supported through communities of practice, mentoring, and access to digital pedagogical resources. Without adequate training, there is a risk that digital tools will be used in superficial or inefficient ways, replicating traditional models rather than transforming instruction in meaningful, learner-centered ways.

Another significant challenge is the integration of digital pedagogy into existing curricula and institutional structures. Many FFL programs still adhere to standardized curricula that prioritize grammar-based instruction and are tightly coupled to printed textbooks and traditional assessment models. Embedding interactive digital approaches requires a shift not only in instructional strategies but also in curriculum design, learning objectives, and evaluation practices (Mhlongo *et al.*, 2023; Tuxtayevich *et al.*, 2024).

Institutional resistance to change, inflexible accreditation systems, and lack of alignment between pedagogical goals and technological policies can hinder innovation. For instance, standardized exams often fail to assess digital or communicative competencies, discouraging educators from prioritizing these skills. Therefore, successful implementation requires institutional support at multiple levels, including leadership commitment, policy alignment, budgetary allocation for digital resources, and the establishment of shared frameworks for digital literacy and assessment.

Moreover, the incorporation of digital pedagogy must be guided by pedagogical principles rather than technological novelty. The risk of "technology for technology's sake" can lead to fragmented or ineffective instruction if not rooted in sound methodological frameworks. Strategic planning and institutional collaboration are essential to ensure that digital innovation is sustainable, scalable, and pedagogically coherent (Redep *et al.*, 2023; Radenkova, 2024).

The shift toward interactive digital pedagogy in FFL instruction holds transformative potential, but it is accompanied by complex challenges that require deliberate planning and systemic response. Bridging the digital divide, equipping educators with robust digital competencies, and aligning curricula and institutional structures with pedagogical innovation are critical steps toward ensuring that technology enhances, rather than hinders, language learning. By addressing these challenges, educational stakeholders can create inclusive, engaging, and future-oriented FFL programs that meet the diverse needs of learners in the digital age (Chowdhury *et al.*, 2024; Akintayo *et al.*, 2024).

3. CONCLUSION

This has explored the transformative impact of interactive digital pedagogy on French as a Foreign Language (FFL) instruction, emphasizing its role in enhancing learner engagement, autonomy, linguistic competence, and intercultural awareness. Grounded in constructivist, sociocultural, and communicative teaching frameworks, the integration of virtual learning environments, mobile applications, gamification tools, and authentic multimedia content offers FFL learners richer and more contextualized language experiences. Through collaborative projects, adaptive feedback, and real-time interaction, learners develop not only linguistic proficiency but also digital and intercultural literacies essential for 21st-century communication.

Despite these benefits, effective implementation faces notable challenges, including technological inequalities, insufficient teacher training, and misalignment with rigid curricula. These barriers must be addressed to ensure equitable access and pedagogical coherence. Educational institutions and policymakers are urged to invest in ongoing professional development, support inclusive and scalable technology infrastructure, and promote curricular reforms that align assessment and instructional design with interactive, learner-centered approaches.

Looking forward, future research should focus on longitudinal studies to measure the sustained effects of digital pedagogy on FFL learning outcomes. Investigating variables such as learner motivation, retention, communicative competence, and intercultural sensitivity over time would provide valuable insights into the long-term efficacy and adaptability of digital methods. Moreover, research exploring diverse learner contexts across regions, educational levels, and socio-economic backgrounds would contribute to more equitable and context-sensitive models of implementation.

Interactive digital pedagogy represents a pivotal evolution in FFL instruction, promising to bridge the gap between language acquisition and real-world communication. With strategic investment, collaborative innovation, and evidence-based research, FFL education can be transformed into a more inclusive, dynamic, and impactful learning experience.

References

- [1] Adenuga, T. & Okolo, F.C., 2021. Automating Operational Processes as a Precursor to Intelligent, Self-Learning Business Systems. *Journal of Frontiers in Multidisciplinary Research*, 2(1), pp.133–147. Available at: <https://doi.org/10.54660/JFMR.2021.2.1.133-147>.
- [2] Adenuga, T. *et al.*, 2024. Enabling AI-Driven Decision-Making through Scalable and Secure Data Infrastructure for Enterprise Transformation. *International Journal of Scientific Research in Science, Engineering and Technology*, 11(3), pp.482–510. Available at: <https://doi.org/10.32628/IJSRSET241486>.
- [3] Adenuga, T. *et al.*, 2024. Supporting AI in Logistics Optimization through Data Integration, Real-Time Analytics, and Autonomous Systems. *International Journal of Scientific Research in Science, Engineering and Technology*, 11(3), pp.511–546. Available at: <https://doi.org/10.32628/IJSRSET241487>.
- [4] Adenuga, T., Ayobami, A.T. & Okolo, F.C., 2019. Laying the Groundwork for Predictive Workforce Planning Through Strategic Data Analytics and Talent Modeling. *IRE Journals*, 3(3), pp.159–161. ISSN: 2456-8880.
- [5] Adenuga, T., Ayobami, A.T. & Okolo, F.C., 2020. AI-Driven Workforce Forecasting for Peak Planning and Disruption Resilience in Global Logistics and Supply Networks. *International Journal of Multidisciplinary Research and Growth Evaluation*, 2(2), pp.71–87. Available at: <https://doi.org/10.54660/IJMRGE.2020.1.2.71-87>.
- [6] Adenuga, T., Ayobami, A.T., Mike-Olisa, U. & Okolo, F.C., 2024. Leveraging generative AI for autonomous decision-making in supply chain operations: A framework for intelligent exception handling. *International Journal of Computer Sciences and Engineering*, 12(5), pp.92–102. <https://doi.org/10.32628/CSEIT24102138>.
- [7] Afzal, A., Khan, S., Daud, S., Ahmad, Z. and Butt, A., 2023. Addressing the digital divide: Access and use of technology in education. *Journal of Social Sciences Review*, 3(2), pp.883-895.
- [8] Ajuwon, A. *et al.*, 2024. A Model for Financial Automation in Developing Economies: Integrating AI with Payment Systems and Credit Scoring Tools. *Gyanshauryam, International Scientific Refereed Research Journal*, 7(6), pp.161–205.
- [9] Akintayo, O.T., Atobatele, F.A. and Mouboua, P.D., 2024. Navigating multilingual identities: The role of languages in shaping social belonging and political participation. *International Journal of Applied Research in Social Sciences*, 6(5), pp.828-843.
- [10] Akintayo, O.T., Atobatele, F.A. and Mouboua, P.D., 2024. The dynamics of language shifts in migrant communities: Implications for social integration and cultural preservation. *International Journal of Applied Research in Social Sciences*, 6(5), pp.844-860.
- [11] Akintayo, O.T., Eden, C.A., Ayeni, O.O. and Onyebuchi, N.C., 2024. Inclusive curriculum design: Meeting the diverse needs of students for social improvement. *International Journal of Applied Research in Social Sciences*, 6(5), pp.770-784.

- [12] Alenezi, M., Wardat, S. and Akour, M., 2023. The need of integrating digital education in higher education: Challenges and opportunities. *Sustainability*, 15(6), p.4782.
- [13] Atobatele, F.A. and Okonkwo, C.A., 2024. Incorporating Emotional Intelligence in Leadership Training: A US Review: Evaluating the Effectiveness, Challenges, and Long-Term Benefits of Integrating EQ Development in Leadership Programs.
- [14] Atobatele, F.A. and Okonkwo, C.A., 2024. International Journal of Social Science Exceptional Research. *International Journal of Social Science Exceptional Research*.
- [15] Atobatele, F.A. and Okonkwo, C.A., 2024. The Impact of Career Counseling on Individuals with Disabilities: A Review.
- [16] Atobatele, F.A., Kpodo, P.C. and Eke, I.O., 2024. A systematic review of learning community impacts on international student success. *International Journal of Applied Research in Social Sciences*, 6(3), pp.421-439.
- [17] Atobatele, F.A., Kpodo, P.C. and Eke, I.O., 2024. Faculty engagement in international student success: A review of best practices and strategies. *International Journal of Applied Research in Social Sciences*, 6(3), pp.440-459.
- [18] Awoyemi, O., Atobatele, F.A. and Okonkwo, C.A., 2024. Enhancing High School Educational Leadership through Mentorship: A Data-Driven Approach to Student Success. *International Journal of Social Science Exceptional Research*.
- [19] Awoyemi, O., Atobatele, F.A. and Okonkwo, C.A., 2024. Personalized Learning in High School Social Studies: Addressing Diverse Student Needs in the Classroom. *Journal of Frontiers in Multidisciplinary Research*, 5(1), pp.176-183.
- [20] Awoyemi, O., Atobatele, F.A. and Okonkwo, C.A., 2024. Teaching Conflict Resolution and Corporate Social Responsibility (CSR) in High Schools: Preparing Students for Socially Responsible Leadership. *International Journal of Social Science Exceptional Research*.
- [21] Ayobami, A.T. *et al.*, 2023. Algorithmic Integrity: A Predictive Framework for Combating Corruption in Public Procurement through AI and Data Analytics. *Journal of Frontiers in Multidisciplinary Research*, 4(2), pp.130–141. <https://doi.org/10.54660/JFMR.2023.4.2.130-141>
- [22] Bang, T.C., 2024. Technology Integration in English Language Education: An Evolving Paradigm. In *Exploring Contemporary English Language Education Practices* (pp. 131-157). IGI Global.
- [23] Bitar, N. and Davidovich, N., 2024. Transforming pedagogy: The digital revolution in higher education. *Education Sciences*, 14(8), p.811.
- [24] Chen, D., 2024. *A hybrid approach to teaching Chinese through digital humanities, CALL, and project-based learning*. Taylor & Francis.
- [25] Chowdhury, T.I., Al Saeedi, A.S., Karim, A.M., Ahmed, A.R. and Karim, A.M., 2024. Effective contemporary leadership in the tertiary education: global stakeholders viewpoint.

- [26] Ennis, M.J., Barchi, K.A., Merello Astigarraga, A. and Wimhurst, A., 2022. A pilot course with project-based learning in an intensive English program. *Language Learning in Higher Education*, 12(1), pp.57-85.
- [27] Githinji, L., & Nyangoma, D. (2022). A conceptual framework for cross-cultural complaint resolution and service recovery to drive client success in banking. *Iconic Research and Engineering Journals*, 6(5), 223–237.
- [28] Githinji, L., & Nyangoma, D. (2022). A systematic review of customer service success metrics in multinational banking across East and Southern Africa. *Iconic Research and Engineering Journals*, 4(7), 182–193.
- [29] Githinji, L., & Nyangoma, D. (2022). Advances in leadership communication for sustained customer success and inclusive experience management. *Iconic Research and Engineering Journals*, 6(2), 354–371.
- [30] Githinji, L., & Nyangoma, D. (2023). A conceptual model for mentorship-driven academic success and retention in diverse college populations. *International Journal of Multidisciplinary Research and Growth Evaluation*, 4(2), 723–733. <https://doi.org/10.54660/IJMRGE.2023.4.2.723-733>
- [31] Githinji, L., & Nyangoma, D. (2023). Advances in life skills coaching for youth employability and success in Sub-Saharan Africa. *International Journal of Multidisciplinary Research and Growth Evaluation*, 4(2), 712–722. <https://doi.org/10.54660/IJMRGE.2023.4.2.712-722>
- [32] Githinji, L., & Nyangoma, D. (2023). Systematic review of culturally responsive teaching and multilingual support programs for advancing student success in U.S. higher education. *Journal of Frontiers in Multidisciplinary Research*, 4(2), 41–51. <https://doi.org/10.54660/IJMRGE.2023.4.2.723-733>
- [33] Githinji, L., & Nyangoma, D. (2025). Systematic review of institutional belonging and motivation as predictors of long-term student success. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology*, 11(3), 182–193. <https://doi.org/10.32628/CSEIT2511421>
- [34] Hassa, S., 2023. French, a local language of radio and podcasts in Morocco. *Contemporary French Civilization*, 48(3), pp.257-282.
- [35] Izadi, S. and Forouzanfar, M., 2024. Error correction and adaptation in conversational AI: A review of techniques and applications in chatbots. *Ai*, 5(2), pp.803-841.
- [36] Jain, P., 2024. Authentic Materials for Intercultural Communication: Develop Speaking Materials That Encourage Learners to Engage in Authentic Cross-Cultural Communication Effectively in Diverse Global Contexts. *Creative Saplings*, 3(4), pp.1-14.
- [37] Jegede, O.O., 2024. Artificial Intelligence and English Language Learning: Exploring the Roles of AI-Driven Tools in Personalizing Learning and Providing Instant Feedback. *Universal Library of Languages and Literatures*, 1(2).

- [38] Liu, D.Y.T., Atif, A., Froissard, J.C. and Richards, D., 2019, January. An enhanced learning analytics plugin for Moodle: student engagement and personalised intervention. In *ASCILITE 2015-Australasian Society for Computers in Learning and Tertiary Education, Conference Proceedings*.
- [39] Lyu, T., Li, K., Wang, X., Xiao, X. and Zhu, B., 2024, June. Enhancing Collaborative Learning in Blended Environments: The Mediator Role of Intra-Group Emotional Support in Peer Interaction. In *Proceedings of the 2024 9th International Conference on Distance Education and Learning* (pp. 172-177).
- [40] Mhlongo, S., Mbatha, K., Ramatsetse, B. and Dlamini, R., 2023. Challenges, opportunities, and prospects of adopting and using smart digital technologies in learning environments: An iterative review. *Heliyon*, 9(6).
- [41] Mouboua, P.D., Atobatele, F.A. and Akintayo, O.T., 2024. Bridging STEM and linguistic gaps: A review of multilingual teaching approaches in science education. *Open Access Research Journal of Multidisciplinary Studies*, 7(2), pp.86-97.
- [42] Mouboua, P.D., Atobatele, F.A. and Akintayo, O.T., 2024. Language as a tool for intercultural understanding: Multilingual approaches in global citizenship education. *Magna Scientia Advanced Research and Reviews*, 11(1), pp.019-030.
- [43] Mouboua, P.D., Atobatele, F.A. and Akintayo, O.T., 2024. Multilingual education and social equity: A comparative study of integration policies in multicultural societies. *GSC Advanced Research and Reviews*, 19(2), pp.032-042.
- [44] Muthmainnah, M., Cardoso, L., Alsbbagh, Y.A.M.R., Al Yakin, A. and Apriani, E., 2024, June. Advancing sustainable learning by boosting student self-regulated learning and feedback through AI-driven personalized in EFL education. In *International conference on explainable artificial intelligence in the digital sustainability* (pp. 36-54). Cham: Springer Nature Switzerland.
- [45] Nguyen, H., Dolan, H., Taylor, S. and Peyretti, T., 2022. Cultivating intercultural competences in digital higher education through English as an international language. *Journal of Academic Language and Learning*, 16(1), pp.1-16.
- [46] Nyangoma, D., Adaga, E. M., Sam-Bulya, N. J., & Achumie, G. O. (2023). A data-centric framework for monitoring progress and outcomes in refugee resettlement programs. *International Journal of Management and Organizational Research*, 2(1), 281–287. <https://doi.org/10.54660/ijmor.2023.2.1.281-287>
- [47] Nyangoma, D., Adaga, E. M., Sam-Bulya, N. J., & Achumie, G. O. (2023). Integrating sustainability principles into agribusiness operations: A strategic framework for environmental and economic viability. *International Journal of Management and Organizational Research*, 2(4), 43–48. <https://doi.org/10.54660/ijmor.2023.2.4.43-50>
- [48] Nyangoma, D., Adaga, E. M., Sam-Bulya, N. J., & Achumie, G. O. (2022). A conceptual model for strengthening employer engagement frameworks in workforce integration programs. *International Journal of Social Science Exceptional Research*, 1(1), 202–209. <https://doi.org/10.54660/ijsser.2022.1.1.202-209>

- [49] Nyangoma, D., Adaga, E. M., Sam-Bulya, N. J., & Achumie, G. O. (2022). Holistic case management in refugee resettlement: Designing integrated systems for sustainable socioeconomic outcomes. *International Journal of Social Science Exceptional Research*, 1(1), 194–201. <https://doi.org/10.54660/ijsser.2022.1.1.194-201>
- [50] Nyangoma, D., Adaga, E. M., Sam-Bulya, N. J., & Achumie, G. O. (2023). Public-private collaboration models for enhancing workforce inclusion programs: A conceptual approach. *International Journal of Management and Organizational Research*, 2(1), 267–273. <https://doi.org/10.54660/ijmor.2023.2.1.267-273>
- [51] Nyangoma, D., Adaga, E. M., Sam-Bulya, N. J., & Achumie, G. O. (2024). Designing quality control and compliance models for customer-centric service industries: A process-driven approach. *Journal of Frontiers in Multidisciplinary Research*, 5(1), 133–140. <https://doi.org/10.54660/ijfmr.2024.5.1.133-140>
- [52] Nyangoma, D., Adaga, E. M., Sam-Bulya, N. J., & Achumie, G. O. (2024). Operational excellence in SMEs: A conceptual framework for optimizing logistics and service delivery systems. *Journal of Frontiers in Multidisciplinary Research*, 5(1), 149–156. <https://doi.org/10.54660/ijfmr.2024.5.1.149-156>
- [53] Nyangoma, D., Adaga, E. M., Sam-Bulya, N. J., & Achumie, G. O. (2024). A comprehensive framework for cultural orientation programs: Conceptualizing effective integration strategies. *Journal of Frontiers in Multidisciplinary Research*, 5(1), 125–132. <https://doi.org/10.54660/ijfmr.2024.5.1.125-132>
- [54] Nyangoma, D., Adaga, E. M., Sam-Bulya, N. J., & Achumie, G. O. (2025). Unified digital platforms for refugee case management: A framework for service coordination and efficiency. *Computer Science & IT Research Journal*, 6(3), 171–183. <https://doi.org/10.51594/csitrj.v6i3.1874>
- [55] Nyangoma, D., Adaga, E. M., Sam-Bulya, N. J., & Achumie, G. O. (2025). Market trend analysis as a strategic tool for workforce development programs: A data-driven conceptual model. *International Journal of Advanced Multidisciplinary Research and Studies*, 5(2), 1–9. www.multiresearchjournal.com
- [56] Ok, E., 2025. An Evaluation of the Learning Management System for Increasing Student Engagement in Higher Education a Review.
- [57] Oyedele, M. *et al.*, 2020. Leveraging Multimodal Learning: The Role of Visual and Digital Tools in Enhancing French Language Acquisition. *IRE Journals*, 4(1), pp.197–199. ISSN: 2456-8880. <https://www.irejournals.com/paper-details/1708636>
- [58] Oyedele, M. *et al.*, 2021. Beyond Grammar: Fostering Intercultural Competence through French Literature and Film in the FLE Classroom. *IRE Journals*, 4(11), pp.416–417. ISSN: 2456-8880. <https://www.irejournals.com/paper-details/1708635>
- [59] Oyedele, M. *et al.*, 2022. Code-Switching and Translanguaging in the FLE Classroom: Pedagogical Strategy or Learning Barrier? *International Journal of Social Science Exceptional Research*, 1(4), pp.58–71. Available at: <https://doi.org/10.54660/IJSSER.2022.1.4.58-71>.
- [60] Park, K., Farb, A. and George, B., 2023. Effectiveness of visual communication and collaboration tools for online GIS teaching: using Padlet and Conceptboard. *Journal of Geography in Higher Education*, 47(3), pp.399-410.

- [61] Ping, L. and Ping, W.S., 2024. The Influence of Intercultural Communication Competence on College Students' English Language Learning Motivation at Jiangxi, China: Mediated by Cultural Exposure. *International Journal of Academic Research in Business and Social Sciences*, 14(11).
- [62] Radenkova, T., 2024. Building and Maintaining Learning Ecosystems in Alignment with the Digital and Green Transition. *Studies in Humanities and Social Sciences*, 15, p.31.
- [63] Rapti, C. and Panagiotidis, P., 2024. Teachers' Attitudes towards AI Integration in Foreign Language Learning: Supporting Differentiated Instruction and Flipped Classroom. *European Journal of Education (EJED)*, 7(2), pp.88-104.
- [64] Ređep, N.B., Fiasco, M.R., Kralj, L., Lappenküper, D., Marinova, B., Biškupić, I.O., Pallaver, S., Radman, G. and Terrasse, C., 2023. Strategic Approach to Digitalisation in Education: Institutional Concepts, Best Practices, Blueprint, and Case Studies. *Journal of Strategic Information Systems*, 20, p.2.
- [65] Saboktakin, L., 2024. E-learning in Medical Student: Systematic Review in Evidence Base Articles. *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 3(3), pp.797-808.
- [66] Shaddad, A.R.E. and Jember, B., 2024. A step toward effective language learning: an insight into the impacts of feedback-supported tasks and peer-work activities on learners' engagement, self-esteem, and language growth. *Asian-Pacific Journal of Second and Foreign Language Education*, 9(1), p.39.
- [67] Shamsiddin, X., 2024. THE SUBJECT IS INTERACTIVE METHODS THAT DEVELOP COMMUNICATIVE COMPETENCE IN STUDENTS. *International Journal of Pedagogics*, 4(05), pp.117-122.
- [68] Strousopoulos, P. and Troussas, C., 2024, November. Personalized Learning via Gamified Virtual Environments: Exploring Insights and Impact. In *2024 19th International Workshop on Semantic and Social Media Adaptation & Personalization (SMAP)* (pp. 111-115). IEEE.
- [69] Tuxtayevich, K.I., Ahmatovna, P.S., Turgunbayevna, M.N., Rasulovna, R.M., Qizi, T.F.R. and Qizi, Y.N.A., 2024. Different Approaches to Enhance Critical Thinking in Digital Education. *SPAST Reports*, 1(7).
- [70] Wahidin, I.S., Jaafar, R.E., Wan Mohamad, W.M. and Amer, N., 2024. Students' satisfaction with utilizing Padlet as a collaborative learning tool. *International Journal of e-Learning and Higher Education (IJELHE)*, 19(2), pp.399-415.
- [71] Wu, J.G., Zhang, D. and Lee, S.M., 2023. Into the brave new metaverse: Envisaging future language teaching and learning. *IEEE Transactions on Learning Technologies*, 17, pp.44-53.
- [72] Yadav, S., 2024. Designing Effective E-Portfolios for Authentic Assessment: Encouraging Reflection and Promoting Student Ownership. In *Cases on Authentic Assessment in Higher Education* (pp. 235-258). IGI Global.

- [73] Yang, M., Wang, T. and Lim, C.P., 2023. E-portfolios as digital assessment tools in higher education. In *Learning, Design, and Technology: An International Compendium of Theory, Research, Practice, and Policy* (pp. 2213-2235). Cham: Springer International Publishing.
- [74] Yarmanov, F., 2024. MODERN APPROACHES TO TEACHING FRENCH: INNOVATIONS AND PEDAGOGICAL PRACTICES. *European International Journal of Philological Sciences*, 4(10), pp.26-30.
- [75] Zhou, S., 2024. Gamifying language education: the impact of digital game-based learning on Chinese EFL learners. *Humanities and Social Sciences Communications*, 11(1), pp.1-14.