International Journal of Innovation and Modern Applied Science

Vol. 11 Issue 02 , December 2025

Doi : https://doi.org/10.57109/5003

ISSN No.: 665-8984

The Innovation Nexus in FLE Instruction: Navigating the Human-AI Relationship for Equitable Transformation in Morocco

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ABSTRACT : This article analyses the impact of artificial intelligence (AI) on the teaching of French to Moroccan learners, highlighting the pedagogical transformations. AI offers major advantages: personalised teaching via precise diagnoses and individualised pathways adapted to the local context, automation of administrative tasks, improved assessment through data analysis, and the creation of innovative and interactive teaching resources taking into account Moroccan cultural specificities. However, the integration of AI in Morocco poses challenges: the risk of dehumanising teaching, the need for ongoing training and adaptation of methods, inequalities of access and the digital divide exacerbated by regional disparities, and questioning the role of the teacher. For Moroccan students, AI enables personalised learning, access to a variety of resources, and greater autonomy and motivation. However, there are risks of dependency, inequality of access and impact on critical thinking. Thus, responsible and balanced integration is crucial to maximise the benefits of AI while minimising its risks in the Moroccan context.

Keywords: Artificial intelligence, Teaching French, Pedagogical practices, Moroccan schools, New technology, personalised learning;

1. INTRODUCTION

This section should be succinct, with no subheadings. In Morocco, teaching French as a foreign language plays a crucial role in cultural openness and preparing young Moroccans for international communication. Indeed, French is considered a language of instruction and culture, and learning it is therefore essential to academic and professional training. However, challenges persist: heterogeneity of levels, difficulties of motivation, and teacher overload. In this context, the integration of artificial intelligence (AI) represents an unprecedented opportunity to transform pedagogical practices and improve the learning of French as a foreign language. Indeed, AI offers innovative tools to personalize learning, facilitate the acquisition of linguistic and cultural skills, and motivate Moroccan learners. It makes it possible to respond to the specific needs of students, taking into account their individual levels and backgrounds. However, this integration also raises specific challenges, linked to the nature of French as a foreign language, the needs of Moroccan learners and the realities of Moroccan schools, notably in terms of unequal access to technology and regional disparities. Moreover, this new technology offers unprecedented prospects for making the teaching/learning of French inclusive, and for improving the level of all learners. However, its integration raises crucial issues such as the need to preserve the human dimension of the teacher, to reconciling the benefits and opportunities of AI with the challenges of the digital divide to ensure equity, and adopting the necessary strategies for successful successful integration of this technology. In this context, to best support this issue, it would be wise to ask the following question: How is AI transforming the teaching of French as a foreign language in Morocco, and what are the challenges and opportunities for teachers and students? This question is all the more relevant in a country where the issues of education and access to technology are crucial.

In this framework, this study will focus on the educational transformations brought about by AI. At the same time, it looks at the impact of the integration of artificial intelligence on the teaching/learning of the French language at secondary school level, in terms of the development of learners' linguistic (oral and written comprehension and expression) and cultural skills. Therefore, we can put forward the following two research hypotheses:

-The integration of artificial intelligence into the teaching of French at secondary level has an overall positive impact on the progress, commitment and motivation of learners.

-Artificial intelligence has an overall negative impact on autonomy, the development of socio-emotional skills, critical thinking and feedback between teacher and learner.

Furthermore, in order to validate or refute the research hypotheses, this study aims to analyse the impacts of AI on the teaching of French at the secondary college level in Morocco, by highlighting the specificities of the local context. We will explore how AI can meet the needs of teachers and students, taking into account the specific challenges of the Moroccan education system. We will also explore the challenges and

opportunities related to the integration of AI, such as teacher training, accessibility of tools, and ethical considerations. In addition, we are interested in assessing how AI can personalise learning, provide individualised feedback and encourage learner involvement through interactive activities tailored to their specific needs. Thus, the objective of this research is to provide concrete recommendations for a thoughtful and effective integration of AI in the teaching of French at the secondary level, in order to improve the quality of learning and prepare students for the challenges of the XXI st century.

Our analysis will focus on the following areas:

⇒ Impacts of AI on Moroccan teachers: We will explore how AI can lighten the workload of teachers, by automating administrative tasks and facilitating pedagogical differentiation. We will also examine how AI can enrich their teaching practices, by providing them with tools for analysing data and creating appropriate resources.

⇒ Impacts of AI on Moroccan students: We will analyse how AI can personalise the learning of French as a foreign language, taking into account the varying levels and needs of students. We will explore how AI can foster students' autonomy and motivation, by offering them interactive activities and personalised feedback.

⇒ Challenges and opportunities in Morocco: We will evaluate the ethical, social and pedagogical issues related to the integration of AI in the teaching of French as a foreign language in Morocco. We will highlight good practices and recommendations for responsible and effective use, taking into account local realities such as the digital divide and regional disparities.

To carry out this research on the integration of artificial intelligence into the teaching of French as a foreign language at secondary school level in Morocco, it would be appropriate to adopt a qualitative methodological approach. This methodology combines an exploratory documentary research in order to establish the state of the art and a qualitative study through interviews with key players. This approach will make it possible to establish a cross-study of theoretical knowledge with the tangible situation and perspectives in the field. From this perspective, we will be able to provide a nuanced and relevant conception of the potential impact of the integration of artificial intelligence in education on the teaching of French.

Then, on the basis of analysis and logical deduction, avenues for reflection and recommendations will be proposed, with the aim of integrating AI into the teaching of French at secondary level in Morocco in a considered and effective manner. Thus, according to a prospective approach, we can envisage the potential implications and future scenarios of the integration of Artificial Intelligence in the teaching of French in the Moroccan context.

2. IMPACTS OF AI ON MOROCCAN TEACHERS.

AI acts as a powerful assistant, capable of personalizing learning and optimizing time. Far from replacing human expertise, its integration into French language teaching in Morocco offers promising opportunities to reduce teachers' workloads and enrich their pedagogical practices.

2.1. Differentiated instruction and reduced workload

Each learner has a unique pace and specific needs. Thanks to AI, teachers can generate personalized learning paths, customized exercises, or additional resources for struggling students. AI greatly facilitates differentiated instruction by providing teachers with tools to analyze student performance, accurately identifying strengths and weaknesses. This allows educators to offer tailored instruction without an excessive workload. For example, AI can suggest or generate adaptive learning paths.

Consider a student struggling with third-group verb conjugation. AI-generated tools can offer a series of targeted exercises, supplementary lessons, or educational videos. Conversely, for a student who has mastered this concept, the AI provides more advanced activities, complex challenges, or creative projects. These pathways adapt in real time to the student's progress by adjusting the difficulty level and resource type.

Another major contribution of AI is the automation of repetitive administrative tasks. AI-based tools can handle tasks like grading papers, compiling grades, or managing attendance. This frees teachers to focus on the core of their profession: interacting with learners, designing stimulating lessons, and providing individualized support.

In short, AI transforms teachers from knowledge dispensers into architects of learning. By leveraging AI, Moroccan teachers can now dedicate more time to providing personalized support, encouragement, and motivation. The adoption of AI in FLE teaching is a significant step toward a more equitable and effective education system where every student can progress at their own pace and reach their full potential.

2.2. Enrichment of teaching practices

AI is a valuable resource for enriching teachers' pedagogical practices. Educational platforms can provide in-depth data analysis on the effectiveness of teaching methods, student engagement, and areas requiring remediation. This objective information allows teachers to adjust their strategies, optimize lessons, and better target their interventions.

Additionally, AI acts as a catalyst for creativity in designing teaching resources. It can be used to generate educational texts and dialogues on a variety of topics, tailored to students' levels. Teachers can also leverage AI tools to create interactive exercises, such as quizzes and drag-and-drop activities, to make learning more

engaging. AI can also produce visual aids, such as infographics and diagrams, to facilitate the understanding of complex concepts.

Finally, AI helps adapt existing content to specific Moroccan cultural contexts and can produce custom resources tailored to a particular group or even a single student. For example, it can rephrase a text using simplified vocabulary, generate additional exercises on a specific grammar rule, or offer concrete examples relevant to a student's interests. This ability to quickly generate targeted content provides teachers with a diverse and relevant library of resources.

Ultimately, AI does not replace the teacher; instead, it provides them with tools for a more effective, personalized, and innovative approach to teaching. This ability to create and adapt diverse resources on demand allows teachers to continuously refresh their methods, maintain student interest, and effectively respond to different learning styles.

3. IMPACTS OF AI ON MOROCCAN LEARNERS.

The advent of artificial intelligence in education promises to transform the learning experience, especially in French as a Foreign Language (FLE) instruction. AI makes learning more personalized, engaging, and motivating, fundamentally redefining how students interact with the language and with knowledge itself.

3.1 Personalization of FLE Learning: AI as an Intelligent Tutor

In Morocco, learning personalization is crucial, as French proficiency levels vary significantly among students due to factors like their family environment, prior educational background, and intrinsic motivation. Consequently, AI acts as an intelligent and reliable tutor, capable of adapting learning to each student’s specific level and needs—an aspiration difficult to achieve in often overcrowded traditional classrooms.

Through initial diagnostic tests and continuous analysis of a student's interactions with content, AI-based platforms can assess their French language skills in real-time across grammar, vocabulary, and oral and written comprehension. Based on these assessments, AI establishes a dynamic and evolving learning path. This ability to constantly adjust the difficulty and type of activity ensures that each learner remains in their zone of proximal development (ZPD), preventing frustration from material that is too difficult or boredom from material that is too easy.

Furthermore, AI can generate an infinite number of personalized exercises and content, adapting the format (audio, video, text, interactive) to suit the learner's preferences. For example, an AI could offer a student interested in football texts and exercises on that topic, incorporating the specific vocabulary and grammatical structures to be mastered. Another student passionate about Moroccan culture would receive educational materials rooted in that context. This thematic relevance significantly boosts student engagement and assimilation, making the learning experience more enjoyable and effective.

In short, the continuous diagnosis and adaptation of learning paths by AI allows a shift from mass instruction to an individualized, responsive approach. Every Moroccan student, regardless of their initial level or pace, benefits from a pathway optimized for them, maximizing their chances of success and transforming FLE into a more effective and less frustrating experience.

3.2. Promoting Student Autonomy and Motivation

Learning French, which can sometimes feel abstract or remote, becomes tangible and engaging with the help of AI. Learners can use conversational resources like chatbots to practice speaking and writing in simulated, real-world scenarios, such as ordering at a restaurant or asking for directions at a tourist office. Furthermore, AI offers virtual reality (VR) or augmented reality (AR) applications that immerse students in authentic Francophone environments, like a Parisian street or a Montreal market, allowing them to practice the language in a real-life context while also developing their cultural understanding. In this sense, AI is a powerful tool for boosting the autonomy and motivation of Moroccan learners in their FLE journey.

While a teacher's time is limited, AI fills the crucial need for immediate and personalized feedback. When a student makes a grammar or pronunciation error, AI can provide instant corrections, explain the underlying rule, and offer additional examples. For written work, AI tools can analyze style, coherence, and lexical richness, suggesting improvements beyond simple error correction. This enables students to learn from their mistakes in real-time and see their progress concretely.

Moreover, AI makes FLE learning accessible anytime, anywhere. Learners can review lessons at home, practice their speaking skills while traveling, or complete extra exercises on topics that interest them, all at their own pace and without waiting for the next class. This flexibility reinforces student autonomy and encourages them to take ownership of their learning.

In short, AI empowers learners to actively build their own knowledge, overcome difficulties with tailored support, and develop a more positive, proactive relationship with the French language. This represents a paradigm shift that promises to democratize access to quality education and unlock the full linguistic potential of every student.

4. CHALLENGES AND OPPORTUNITIES: TOWARDS THE RESPONSIBLE INTEGRATION OF AI INTO FLE TEACHING IN MOROCCO

While integrating artificial intelligence into French language teaching in Morocco offers immense potential, significant challenges must be addressed. To ensure an ethical, socially equitable, and pedagogically effective adoption, it is essential to confront these issues with clarity and adapt to the specific realities of the Moroccan context.

4.1 Ethical, Social, and Pedagogical Issues

Although the integration of artificial intelligence into the teaching of French in Morocco holds enormous potential, there are significant challenges to be taken into account. In order to ensure that the adoption of artificial intelligence is ethical, socially equitable and pedagogically effective, it is imperative to approach these issues with lucidity, while adapting to the specific realities of the Moroccan context.

From an ethical standpoint, the protection of learners' and teachers' personal data is paramount. AI platforms collect detailed information on performance and learning styles. Therefore, transparency and strong data protection protocols are crucial for maintaining trust. We must question potential algorithmic biases and how this data is stored, used, and secured.

On a social level, there is a risk that AI could become a privilege rather than a tool for equality. AI could exacerbate the existing digital divide in Morocco, widening regional disparities in access to quality education. For equitable integration, prerequisites include access to adequate IT equipment (computers, tablets), stable internet connectivity, and sufficient training for both teachers and students.

From a pedagogical perspective, AI integration raises questions about the future role of teachers. There is a risk of over-reliance on technology, which could neglect the development of fundamental skills like critical analysis and problem-solving. We must also ensure that AI is not limited to repetitive exercises but instead actively encourages creativity, critical thinking, and personal expression. Finally, a legitimate fear of the dehumanization of teaching exists. However, human interaction, empathy, and a teacher's ability to inspire and motivate students are irreplaceable.

Ultimately, the integration of artificial intelligence into FLE teaching in Morocco is a complex equation. The promises of innovation must be weighed against the socio-economic and educational realities on the ground. A clear understanding of these challenges and opportunities is essential for a successful and equitable implementation strategy.

4.2 Levers for Transformation in FLE in Morocco

Despite these challenges, the opportunities offered by AI are considerable and could transform the teaching of French as a foreign language in Morocco in the long term.

4.2.1. Improving access and equity

Indeed, AI can make learning FLE more accessible to a wider population in Morocco by providing unlimited access to interactive teaching resources, virtual tutors and self-correcting exercises, reducing reliance on textbooks and traditional classes, and by adapting to different learning styles and creating a judgment-free environment for oral practice.

In addition, AI offers quality education to learners in remote areas, to those who don't have access to private tuition, or to those with time or financial constraints, thereby helping to overcome geographical and socio-economic barriers. In this way, AI actively contributes to the democratization of access to language education. AI facilitates the creation of enriched and interactive pedagogical content, making learning more engaging.

Moreover, through virtual assistants and online platforms, artificial intelligence is a powerful lever for creating an inclusive FLE learning environment in Morocco. AI helps overcome the barriers preventing some learners from fully accessing language education. Learners of all levels can interact in French with greater confidence thanks to real-time translation tools and pronunciation assistants.

In short, artificial intelligence represents a major opportunity to transform the teaching of French in Morocco and adapt it to the challenges of the 21st century. Its aim is not to replace the teacher, but rather to equip him or her with new tools for more effective, personalized and accessible learning. What's more, integrating AI into FLE instruction is a strategic move that will modernize teaching methods, and make learning more equitable, personalized and effective, preparing Moroccan students for a world where mastery of foreign languages is an indispensable asset.

4.2.2. Developing intercultural skills

Learning French in Morocco is inherently linked to its intercultural dimension. AI offers unique opportunities to enrich this dimension, empowering learners to navigate between their culture of origin and the French-speaking culture. It makes learning FLE richer, more nuanced and more relevant for Moroccan learners, equipping them to navigate an increasingly globalized world.

Indeed, language learning is not limited to grammar and vocabulary. AI can enrich the cultural dimension of FLE through algorithms that recommend to learners French-language articles, videos, music or films that

match their interests, encouraging them to immerse themselves in the culture. Thus, AI not only teaches language, it also helps build bridges between cultures.

Furthermore, AI enables learners to "dialogue" with virtual personalities: French-speaking historical figures, artists or writers, giving them a new perspective on culture and history. By creating scenarios that simulate real-life cultural interactions. Crucially, recommendation algorithms can suggest content produced by French-speaking creators of diverse origins (not exclusively from France). This exposes learners to the richness and diversity of the French-speaking world, from sub-Saharan Africa to Canada, and from Switzerland to Lebanon.

In conclusion, Morocco is at a crossroads. The challenges of infrastructure, training and equity are real, and must be addressed head-on through proactive education policies. However, the opportunities to transform FLE teaching, by making it more personalized, engaging and effective for each student, are immense. A well-thought-out national strategy, coupled with strong partnerships and commitment, will position AI as a powerful engine of educational development at the service of Moroccan youth.

5. EMPIRICAL INVESTIGATION.

Although our case study is qualitative and doesn't aim for national generalization, the collection of descriptive data from students at the targeted private school is essential. These statistics will provide much-needed insight into the extent and nature of their engagement with AI tools for learning French, and will serve to conceptualize their testimonies. This empirical study was conducted in a private college with three classes of 25 learners, for a total of 75 students. The aim was to compare the effectiveness of teaching written production in French with and without the integration of artificial intelligence (AI) platforms. To this end, each group of students was given the same written production task twice under the guidance and explanation of the teacher.

5.1. Analysis of Results

Analysis of the written output reveals a significant difference between the two sessions. The figures obtained clearly highlight the challenges of the traditional approach and the benefits of integrating AI.

The results of the first session, without technological assistance, show significant difficulties:

- 60% of learners (45 students) produced irrelevant texts, with numerous spelling and conjugation errors. Their writing style was often inconsistent, making their texts poorly structured and incomprehensible.

- 20% of learners (15 students) wrote stories with a few spelling mistakes and a lexical field less suited to the given topic. Their texts were acceptable, but lacked precision and fluency.

- 20% of learners (15 students) succeeded in producing high-quality writing. Their productions were well-structured, without major errors, and presented a coherent and appropriate style.

These findings underline the fact that the traditional approach, while enabling a minority of students to excel, leaves the majority of learners struggling, particularly concerning the mastery of basic language rules and content coherence.

The results of the second session, where learners were given access to AI platforms, revealed a significant improvement in the quality of written productions. Analysis of the texts indicated a transformation in both the working method and the results obtained.

- 90% of learners (68 students) produced writing that was coherent and free from major grammar, conjugation and spelling errors. The AI assistance acted as an instant proofreader, enabling effective revision and a substantial reduction in linguistic errors.

- Even the 20% of learners who had performed well in the first session showed further improvement. The AI enriched their lexical field and perfected their written production methods, encouraging them to move beyond their foundational skills.

- 10% of learners (7 students) showed a notable indifference to, or limited proficiency with digital tools, which mitigated the impact of AI on their productions.

These results demonstrate the potential of AI to raise the level of the majority of students. The fact that 90% of the students were able to write high-quality texts in a single session underscores AI's role as a catalyst for learning.

CONCLUSION AND FUTURE PERSPECTIVES

The results of this case study confirm that the integration of artificial intelligence tools in the teaching of French at college level can be a powerful lever for improvement. AI acts as a personalized tutor, offering immediate feedback that enables students to self-correct and progress autonomously.

This case study confirms that the integration of artificial intelligence tools is a powerful lever for improving the teaching of French at college level. Specifically, the data obtained, particularly the shift from 60% low-quality productions to 90% high-quality ones, unequivocally attests to the effectiveness of these

technologies. Although AI assistance does not replace teachers, it frees up their time and energy, allowing them to focus on more complex aspects of written production, such as fostering critical thinking and creativity.

However, it's important to consider the long-term implications. The study revealed that learners prefer using AI for French tasks because it simplifies corrections and improves structure. This reliance may affect learners' cognitive load, potentially leading to fatigue or a lack of engagement with the intellectual rigor required to create a text. Therefore, striking a balance is essential: leveraging AI as a support tool, but continuing to encourage critical thinking, creativity and the mastery of foundational language skills without assistance. The aim isn't to replace the teacher or personal effort, but to enrich the learning process to better prepare students for the challenges of the future.

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