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Artificial Intelligence in Higher Education - An Empirical Study on its Impact on French Language Learning Efficiency and Human Capital Formation

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Abstract:

Purpose: *The purpose of this study is to examine the impact of artificial intelligence (AI)-based tools on the effectiveness of learning French in higher education and to assess their role in the process of human capital formation. The study seeks to determine whether the integration of AI into academic language learning contributes to increased learning efficiency and supports the development of competencies relevant to the knowledge-based economy.*

Methodology: *The research is based on an empirical study conducted using a structured online questionnaire. The survey included 15 questions, of which 10 were analyzed for the purposes of this article. The study was carried out among 97 undergraduate and graduate students of Romance Philology. The analysis relies on descriptive statistics and focuses on students' experiences, frequency of AI usage, perceived effectiveness, and concerns related to AI-assisted language learning.*

Design/Research Questions: *The study addresses the following research questions. To what extent do students use AI-based tools in learning French? How do students assess the impact of AI on the pace and effectiveness of language acquisition? Do students perceive AI as a substitute for or a complement to traditional teaching methods? What concerns are associated with the use of AI in academic language learning? Can AI-supported language learning be interpreted as a factor enhancing human capital formation? The research hypotheses are the followings: H1: Students using AI-based tools perceive an increase in the pace of learning French; H2: AI-based tools are perceived as supportive rather than substitutive in relation to traditional teaching methods; H3: The use of AI contributes to the perceived development of competencies relevant to human capital formation.*

Findings: *The findings indicate that AI-based tools are widely used and highly integrated into students' learning practices. A substantial majority of respondents report that AI accelerates the learning process and supports the acquisition of linguistic competencies. However, AI is not perceived as a replacement for the academic teacher. Instead, students view it as a complementary tool enhancing traditional educational methods. At the same time, respondents express concerns regarding potential language inaccuracies, reduced authentic interaction, and overreliance on technology.*

Practical recommendations: *Higher education institutions should develop clear institutional guidelines for responsible AI usage in academic settings. Universities should adopt a hybrid*

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educational model combining AI-supported learning with traditional teacher-led instruction. Academic programs should include digital literacy components focused on critical evaluation of AI-generated content. Further large-scale, multi-institutional studies should be conducted to measure the objective impact of AI on learning outcomes.
Originality value: *The study contributes to the existing literature by linking AI-assisted language learning with the economic concept of human capital formation. It integrates a pedagogical perspective with an economic framework and provides empirical evidence from the context of French language education in higher education.*

Keywords: *Artificial intelligence, higher education, french language, human capital, educational efficiency.*

JEL Code: *I23, I25, O33.*

Paper type: *Research article.*

Declaration of interest statement*: The authors declare that they have no conflict of interest.*

1. Introduction

The digital transformation of higher education has accelerated markedly in recent years. The rapid development of artificial intelligence (AI)-based tools is reshaping not only the organization of the teaching process but also the very nature of learning.

Technologies such as generative systems, intelligent language applications, and adaptive educational platforms have become widely accessible to students and are increasingly embedded in their everyday academic practices. As a result, universities are confronted with the need to reconsider existing models of instruction and to re-evaluate the roles of teachers, students, and technology within the educational process.

The literature emphasizes that artificial intelligence in education can support personalized learning, broaden access to educational content, and enhance the efficiency of knowledge acquisition (Holmes *et al.,* 2019; Zawacki-Richter *et al.,* 2019).

At the same time, scholars point to ethical, cognitive, and methodological challenges, including concerns about the reliability of generated content and the risk of excessive dependence on technological systems (Bender *et al.,* 2021; Selwyn, 2019).

In the context of higher education, this debate extends beyond instructional effectiveness and raises broader questions about the quality and structure of human capital formation.

From the perspective of the economics of education, investment in education is regarded as a fundamental mechanism of human capital accumulation, understood as the stock of knowledge, skills, and competencies that enhance individual productivity (Becker, 1993; Schultz, 1961).

Language competencies constitute a particularly important component of this capital. In conditions of globalization and increasing labor market internationalization, proficiency in foreign languages strengthens professional mobility, facilitates participation in international research and economic projects, and improves graduates' competitiveness (Grin, 2001; Komorowska, 2017).

In the Polish higher education context, interest in the use of new technologies in foreign language teaching has been growing steadily. However, empirical studies examining the impact of AI-based tools on learning effectiveness and on human capital formation remain limited. Existing analyses have tended to focus primarily on methodological or technological aspects, while relatively few have attempted to link educational outcomes with the economic category of human capital.

The case of French language education is particularly relevant in this regard. Although English dominates much of the academic sphere, French continues to play a significant role in diplomacy, international organizations, cultural sectors, and economic relations. For students of Romance philology, language proficiency is not merely an academic objective but a core component of their future professional profile and, consequently, a direct element of their individual human capital.

The aim of this article is to examine the impact of AI-based tools on the effectiveness of learning French in higher education and to assess the extent to which these technologies may support the process of human capital formation among students. By combining a pedagogical and an economic perspective, the study contributes to the broader interdisciplinary discussion on the role of technology in shaping future competencies.

2. Artificial Intelligence in Higher Education – A Theoretical Perspective

The development of artificial intelligence (AI) in recent years has significantly influenced the functioning of higher education. Technologies based on machine learning algorithms and natural language processing have evolved from tools that merely facilitate access to information into active components of the teaching and learning process. The literature indicates that AI can support personalized learning, automate selected instructional tasks, and provide immediate feedback (Holmes *et al.,* 2019; Zawacki-Richter *et al.,* 2019).

In their review of research on AI applications in higher education, Zawacki-Richter *et al.* (2019) identified three primary areas of impact: support for student learning processes, support for teaching staff, and applications in institutional management.

Among these, the first area is particularly significant, as it directly affects educational effectiveness and the development of individual competencies.

Within the learning process, personalization emerges as a central feature. Traditional academic instruction is typically designed around standardized curricula aimed at an average or hypothetical student. In contrast, AI-based tools enable the adjustment of learning pace, level of difficulty, and form of content delivery to individual needs. This adaptability may enhance educational efficiency, understood as the relationship between time and resource inputs and the competencies ultimately achieved.

At the same time, the rapid advancement of generative models capable of producing texts, explanations, and language corrections raises questions regarding the quality and reliability of generated content. Bender *et al.* (2021) caution against the uncritical acceptance of outputs generated by language models as inherently accurate or neutral. Similarly, Selwyn (2019) emphasizes that educational technologies are not value-neutral; they shape particular cognitive practices and may influence how learning itself is conceptualized.

In higher education, the issue of complementarity between technology and academic teaching staff therefore becomes central. Contrary to narratives suggesting the replacement of lecturers by AI systems, the prevailing view in the literature supports a hybrid model in which technology enhances but does not substitute for the relational and cultural dimensions of education (Holmes *et al.,* 2019).

To systematize the main areas of AI application in higher education and outline their potential implications for educational effectiveness and human capital formation, a synthetic overview is presented in Table 1.

Table 1. *Areas of Artificial Intelligence Application in Higher Education and Their Potential Implications for Human Capital*

Area of AI Application	**Description of Use**	**Potential Impact on Educational Effectiveness**	**Potential Impact on Human Capital**
Personalized learning	Adaptive systems adjusting the pace, difficulty level, and learning pathways to individual students	Improved alignment between learning needs and instructional content; reduced time required to achieve competencies	Faster accumulation of skills; increased productivity of the learning process
Content generation and feedback	AI models providing explanations, examples, text	Immediate access to support; enhanced practice opportunities	Development of linguistic, cognitive, and digital

	correction, and formative feedback		competencies
Support in foreign language learning	Translation tools, vocabulary training, grammar exercises, simulated dialogues	Increased exposure to language input; intensified repetition and practice	Strengthening of language competencies as a core component of human capital
Learning analytics	Monitoring student progress and identifying competency gaps	Early identification of learning difficulties; targeted instructional interventions	More efficient investment in education; reduced risk of skill gaps
Administrative automation	Automated grading, content organization, and data management	Greater focus of academic staff on substantive teaching activities	Indirect improvement in educational quality and human capital development

Source: *Author's own elaboration based on Holmes et al. (2019) and Zawacki-Richter et al. (2019).*

As shown in Table 1, the impact of artificial intelligence in higher education extends beyond a purely instrumental function. These technologies may influence the pace of knowledge acquisition, the quality of feedback, and the degree of individualization within the learning process.

Consequently, they have the potential to affect the manner in which competencies are accumulated—competencies that, from an economic perspective, constitute a core component of human capital. The identified areas of AI application therefore suggest that its influence may be structural in nature, reshaping mechanisms of educational investment and enhancing the overall efficiency of higher education systems.

3. Foreign Language Learning and Human Capital – An Economic and Educational Perspective

Within the framework of the economics of education, education is regarded as an investment that contributes to the growth of human capital, understood as the stock of knowledge, skills, and competencies that increase individual productivity (Becker, 1993; Schultz, 1961).

From this perspective, education is not merely a cultural or social process but an economic mechanism that strengthens an individual's labor market position and, in broader terms, supports economic growth.

Language competencies occupy a distinctive place within the structure of human capital. In the context of globalization, corporate internationalization, and growing professional mobility, proficiency in foreign languages enhances graduates' competitiveness (Grin, 2001). The ability to communicate in a foreign language facilitates participation in international projects, broadens access to knowledge, and supports both academic and professional mobility.

The literature emphasizes that investment in language competencies generates both individual and social returns. At the individual level, it increases employment opportunities and potential earnings; at the societal level, it strengthens innovation capacity by facilitating the flow of knowledge across borders (Grin, 2001). In this sense, foreign language learning can be viewed as a strategic investment in human capital.

From the perspective of language pedagogy, however, the focus is not solely on achieving a particular level of proficiency but also on the efficiency of the learning process. Efficiency can be assessed in terms of the relationship between inputs—such as time, effort, and educational resources—and achieved outcomes. In higher education, this raises the question of whether specific teaching methods and tools contribute to faster and more sustainable accumulation of language competencies.

Contemporary approaches to human capital increasingly adopt a broader understanding of competencies, encompassing not only subject-specific knowledge but also digital skills, adaptability, and the capacity for lifelong learning. In this context, the use of AI-based tools may influence not only the development of language proficiency but also the acquisition of digital literacy, critical evaluation skills, and the ability to organize one's own learning process.

In the case of French, the importance of language proficiency extends beyond basic communication. French remains one of the working languages of international organizations, European institutions, and numerous economic actors. For students of Romance philology, language competencies constitute a fundamental element of their future professional profile and, consequently, a key component of their individual human capital.

The integration of AI-based tools into the process of learning French may therefore operate on two levels. First, it may enhance the efficiency with which language competencies are acquired. Second, it may foster the development of digital and adaptive skills that are essential in a knowledge-based economy. From the perspective of human capital theory, the central question becomes whether AI contributes to more efficient accumulation of competencies and, consequently, to an increase in graduates' market value.

Against this background, empirical analysis of how students perceive the influence of AI-based tools on the pace and effectiveness of learning French becomes

particularly relevant. The study presented in the following section seeks to determine whether, in light of students' experiences, AI can be regarded as a factor that strengthens the process of human capital formation in higher education.

4. Empirical Study

4.1 Research Instrument

Empirical data were collected using a survey method. An online questionnaire was distributed to students via the Forms application in the form of an invitation containing a link to the survey. The questionnaire consisted of 15 questions. For the purposes of this article, 10 of these questions were selected for detailed analysis and discussion. The remaining items, although not presented separately, were consistent with and supported the conclusions drawn from the analyzed responses.

The survey focused on students' experiences with and perceptions of AI-based tools in the process of learning French. The questions addressed, among other issues, the frequency and purposes of AI use, perceived impact on learning effectiveness and pace, attitudes toward the role of AI in relation to the teacher, and concerns associated with the use of such technologies.

4.2 Participants

The study was conducted among 97 full-time undergraduate and graduate students of Romance Philology at the University of the National Education Commission in Kraków. Eighty-six respondents were enrolled in first-cycle (Bachelor's) studies, while eleven were pursuing second-cycle (Master's) studies.

The sample consisted of 86 women and 11 men. The age distribution was as follows: 80 students were between 18 and 22 years old, and 17 students were between 23 and 26 years old.

In addition to French as their major field of study, respondents indicated that they were currently learning or had previously studied other foreign languages, including English, Spanish, German, Italian, Russian, Japanese, and Korean. This multilingual background provides an important context for interpreting their experiences with AI-supported language learning.

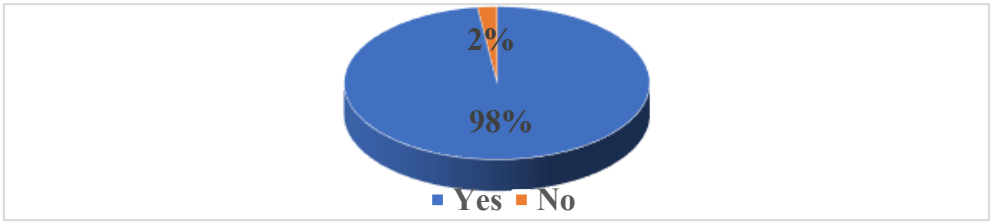
4.3 Research Findings

The primary objective of the study was to gather information on students' experiences and perspectives regarding the use of artificial intelligence (AI) in learning French. The findings also serve as a basis for assessing whether, from the students' standpoint, AI may be considered a factor supporting the process of human capital formation in higher education.

The results indicate that AI-based tools are widely used among the surveyed students and are perceived primarily as supportive instruments that facilitate and accelerate the learning process. At the same time, respondents demonstrate a balanced attitude toward technology, recognizing both its advantages and its limitations.

The empirical findings thus provide insight into how students integrate AI into their academic practices and how they evaluate its role in developing linguistic competencies, which constitute a key component of their future professional profile. In the following subsections, the detailed results are presented and interpreted in relation to the research questions and theoretical framework outlined earlier in the article.

Figure 1. *The Degree of Use of AI-Based Tools in Learning French*



Source: *Own elaboration.*

The opening survey question was: „Have you ever used AI-based tools to learn French (e.g., ChatGPT, Duolingo, Google Translate)?"

The analysis of the responses shows that an overwhelming majority of participants (98%) declared having used AI-based tools in the process of learning French. This indicates that nearly all surveyed students have direct experience with artificial intelligence technologies in this specific educational context.

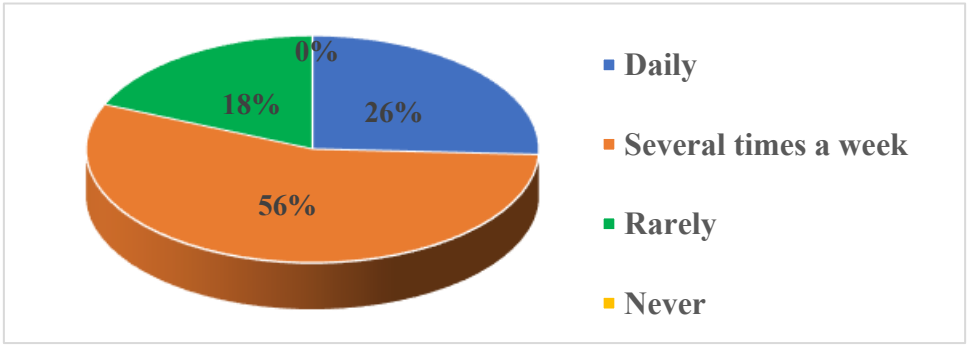
Such a high percentage may reflect the widespread availability and popularity of tools such as Google Translate, Duolingo, and ChatGPT. It also suggests a high level of openness among students toward innovative technologies that support learning, as well as a certain degree of digital competence enabling them to use these tools effectively.

Additionally, the near-universal access to digital infrastructure—including personal devices and internet connectivity - likely plays a significant role in facilitating the integration of AI tools into students' everyday academic practices.

Responses to the second survey question, "How often do you use AI when learning French?", indicate that more than 80% of respondents use AI-based tools regularly, either daily or several times a week. This finding suggests a high level of integration of AI technologies into the process of learning French. For a substantial proportion

of students, these tools appear to function as a routine element of their study practices rather than as occasional support.

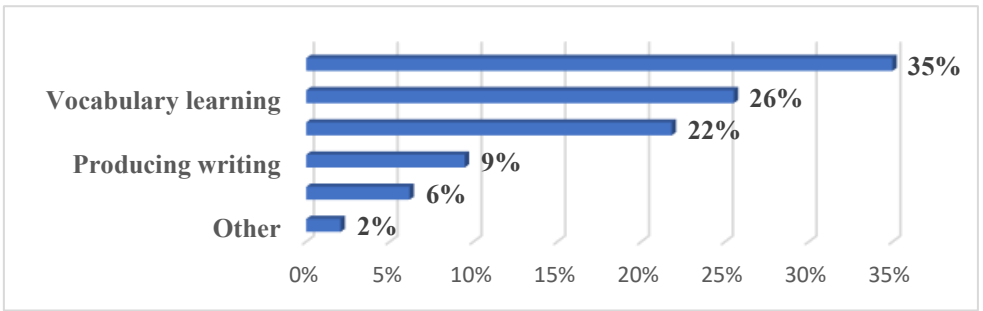
Figure 2. *The frequency of using AI in learning French*



Source: *Own elaboration.*

At the same time, 18% of respondents reported using AI infrequently. This lower frequency of use may stem from limited trust in such technologies, insufficient knowledge about their capabilities, or a preference for more traditional learning methods. These differences in usage patterns point to varying attitudes toward AI and highlight the need to consider individual learning strategies and technological confidence when interpreting the results.

Figure 3. *The purposes of using AI in learning French*



Source: *Own elaboration.*

When asked about the main purposes for which they use AI in learning French, students most frequently indicated translation (35% of responses). This was followed by vocabulary learning (26%) and grammar exercises (22%). These findings point, on the one hand, to the widespread use of AI-powered translation tools such as DeepL, Google Translate, and ChatGPT, and on the other hand, to the popularity of applications like Duolingo or Reverso, which can support the consolidation of lexical and grammatical structures and the acquisition of new vocabulary in context.

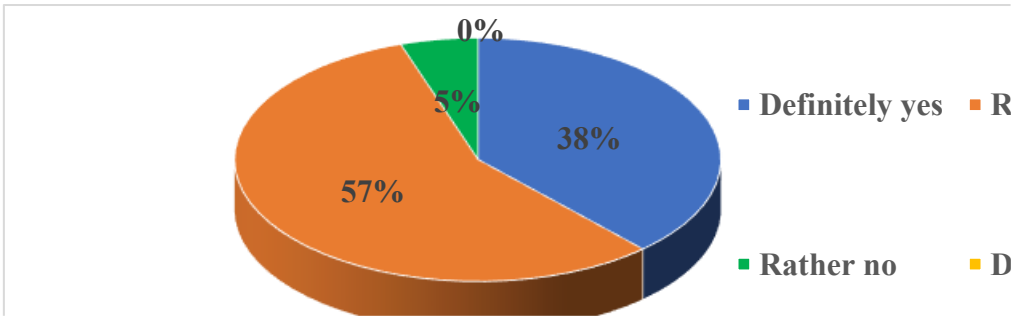
With regard to translation, it is important to recognize that translating from one language into another is a complex process that often presents considerable challenges. Translation involves more than substituting individual words; it requires transferring meaning across cultures, contexts, and tones.

Faced with these difficulties, students may be inclined to rely on AI-based tools specifically designed to assist with such tasks. As noted by Shahmerdanova (2025, p. 64), the integration of artificial intelligence into translation has created new opportunities by enhancing accessibility and efficiency, while also transforming the way languages are mediated across different contexts.

By contrast, language skills such as written production (9%) and conversational practice (6%) were selected much less frequently. This lower level of engagement may reflect uncertainty about how to use AI effectively for more complex communicative tasks, such as simulating authentic dialogue or supporting academic writing in a meaningful rather than mechanical way.

It may also be related to ethical concerns regarding inappropriate use of AI, for example, generating entire written assignments. Such concerns are widely discussed in academic contexts. As Semrl *et al.* (2023, p. 2281) observe, while AI-driven language models may serve as useful educational tools and support academic writing, questions remain regarding the accuracy, transparency, and ethical implications of their application in scholarly work.

Figure 4. *The impact of AI on the pace of learning French*



Source: *Own elaboration.*

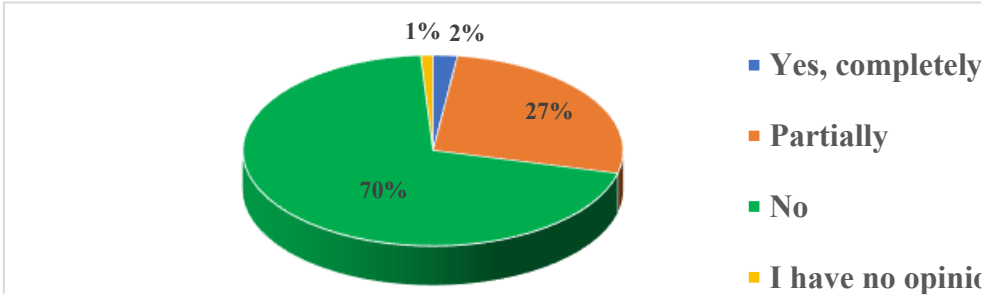
In response to the question, "In your opinion, does AI accelerate your learning of French?", a total of 95% of respondents indicated that AI contributes—either to a greater or lesser extent—to a faster learning process. Only 5% expressed the view that AI does not significantly support more rapid language acquisition.

These results suggest that an overwhelming majority of participants perceive AI as a valuable and effective aid in learning French and recognize its positive influence on the pace of study. From the students' perspective, AI-based tools appear to facilitate

quicker access to explanations, vocabulary, and grammatical clarification, which may reduce the time needed to resolve doubts or complete assignments.

Comparable findings have been reported in the study "AI-Based Technologies in French Learning at the Beginner Level" (Levina *et al.,* 2025), which highlights the benefits of digital tools supported by artificial intelligence in foreign language instruction. According to that study, AI-based technologies contribute to the development of language competencies, improve learning outcomes, and enhance the overall efficiency of the educational process.

Figure 5. *The possibility of replacing a foreign language teacher with AI*



Source: *Own elaboration.*

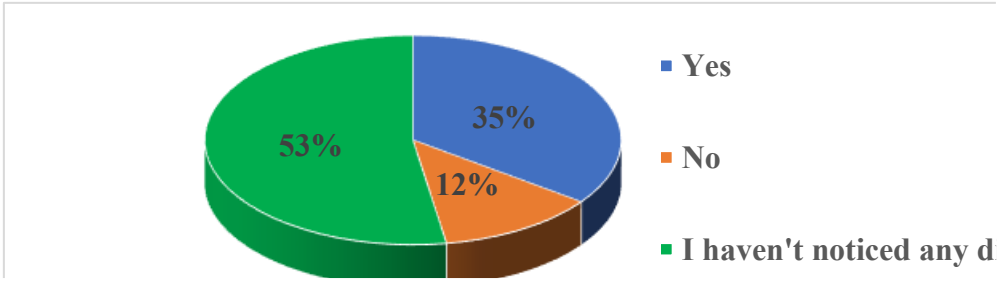
When considering the possibility of replacing a foreign language teacher with AI, a clear majority of respondents (70%) stated that artificial intelligence is not capable of fully substituting for the teacher. An additional 27% indicated that such a replacement might be possible only to a limited extent. These proportions suggest that, in the view of most students, AI may assume a supportive function but should remain a complementary tool rather than a substitute for the academic instructor.

The results point to a strong conviction regarding the irreplaceable role of the human element in foreign language education. Factors such as interpersonal interaction, empathy, sensitivity to linguistic nuances, in-depth explanation of complex issues, presentation of cultural context, and the ability to adapt teaching methods to individual student needs appear to be perceived as central components of effective language instruction. Students thus acknowledge the value of technological support while simultaneously emphasizing the importance of the teacher's professional judgment and relational competence.

These findings are consistent with the conclusions drawn by Chan and Tsi (2024), who report that both teachers and students largely reject the idea of fully replacing educators with generative AI. Their study highlights the unique qualities attributed to teachers, including critical thinking, emotional engagement, and the capacity to foster social and emotional competencies—dimensions that emerge through human interaction and cannot be fully replicated by AI systems.

Overall, the data indicate that students appreciate the presence of AI in the learning process but do not perceive it as a viable replacement for the teacher. Instead, they assign it the role of a significant instructional aid within a broader, human-centered educational framework.

Figure 6. *Use of AI and motivation to learn French*



Source: *Own elaboration.*

With regard to the relationship between the use of AI-based tools and motivation to learn French, the findings reveal a nuanced picture. A total of 53% of respondents reported no noticeable change in their level of motivation after incorporating AI into their learning process, while 12% indicated that no such relationship exists at all.

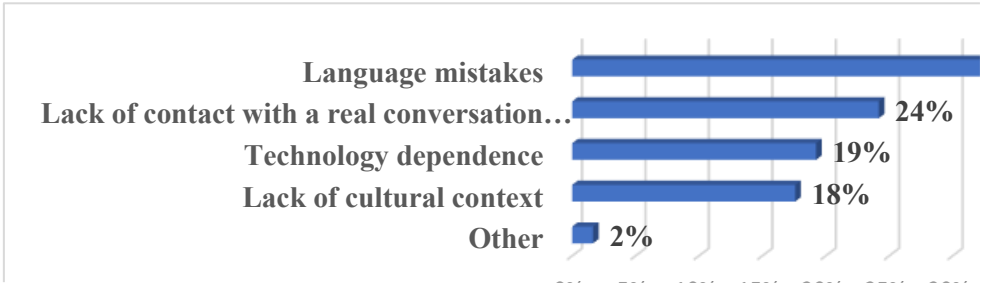
Taken together, these results (65%) suggest that AI is not perceived as a clearly motivating factor among students of Romance philology, even though it may positively influence their engagement with language learning.

This distribution of responses supports the earlier observation that students tend to view AI primarily as a useful auxiliary tool rather than as a driver of intrinsic motivation. In other words, AI appears to facilitate learning without necessarily increasing students' personal commitment or willingness to study French.

At the same time, it is noteworthy that approximately one-third of respondents reported an increase in motivation associated with the use of AI. This effect may be attributed to features such as greater interactivity, personalized content, immediate access to assistance, and the simplification of more complex linguistic tasks. For these students, AI may enhance the learning experience in ways that translate into higher levels of motivation and sustained engagement.

When asked to identify their concerns regarding the use of AI in learning French, respondents most frequently indicated the risk of language errors (37%). This response may reflect limited trust in the linguistic accuracy of AI-generated content. Students appear to recognize that although AI systems can produce texts in French, these outputs are not always grammatically precise, stylistically natural, or fully aligned with authentic language use.

Figure 7. *Concerns related to the use of AI in learning the French language*



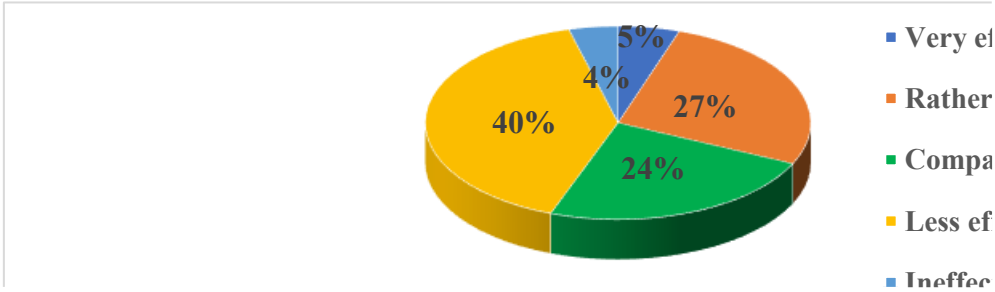
Source: *Own elaboration.*

Another significant concern was the lack of contact with a real interlocutor (24%), that is, the absence of interaction with a living person. Despite the conversational capabilities offered by AI tools, respondents may perceive a deficit in authenticity and limitations in developing communicative competencies such as emotional responsiveness, non-verbal communication, and spontaneity in dialogue.

Additional concerns included the risk of overreliance on technology (19%) and the absence of cultural context (18%). The former suggests apprehension that excessive dependence on AI may reduce learner autonomy and limit independent language practice. The latter underscores the recognition that language proficiency involves more than grammar and vocabulary; it also requires an understanding of culture, social conventions, and contextual nuances—dimensions that algorithmic systems may struggle to convey adequately.

These findings are consistent with earlier responses concerning the possibility of replacing a foreign language teacher with AI. In both cases, students emphasize the importance of human interaction, linguistic subtlety, and cultural embeddedness. For AI to be effectively integrated into foreign language education, it therefore appears essential to combine technological tools with meaningful human engagement and the cultivation of cultural awareness.

Figure 8. *Effectiveness of AI tools versus traditional methods of learning French*



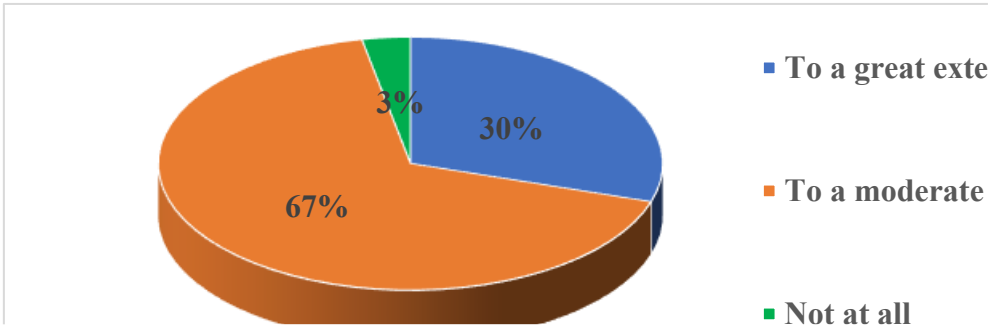
Source: *Own elaboration.*

In response to the question, "How do you assess the effectiveness of AI tools compared to traditional methods of learning French (e.g., textbooks, classes with a teacher)?", only a small proportion of respondents (5%) considered AI to be highly effective. This suggests that relatively few participants attribute exceptional educational value to AI-based tools when compared with conventional approaches.

The majority of responses fell within the categories "rather effective" (27%) and "comparable" (24%). Taken together, 51% of respondents perceive AI as moderately effective in relation to traditional methods. These findings reinforce earlier observations that AI is primarily regarded as a supportive instrument rather than a full-fledged alternative to established forms of language instruction.

It is also noteworthy that 40% of respondents assessed AI tools as less effective than traditional methods. A substantial proportion of students therefore believe that AI does not match the quality of conventional French language teaching. Possible explanations may include the absence of direct interaction with a teacher, limitations in the linguistic accuracy or naturalness of generated content, and restricted opportunities for practicing speaking and comprehension within a meaningful cultural context—issues that were highlighted in earlier parts of the survey.

Figure 9. *The extent of support for learning French provided by AI-based tools*



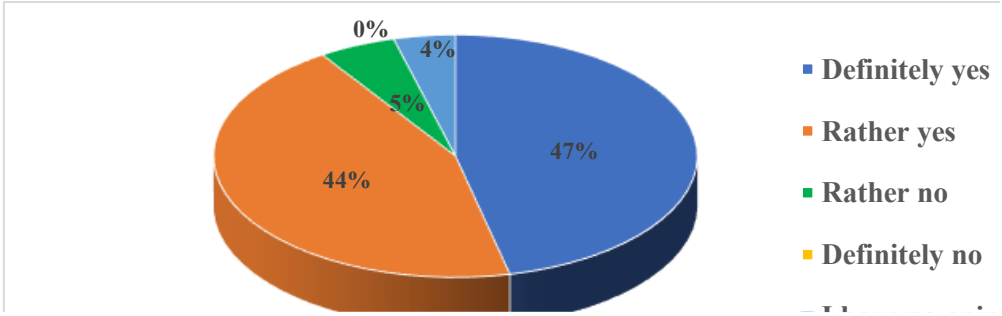
Source: *Own elaboration.*

Turning to the next issue addressed in the survey—the extent to which AI-based tools support the process of learning French—it should be noted that an overwhelming majority of respondents (97%) believe that such tools contribute to their learning. Of these, 30% indicated that AI supports their learning to a significant extent, while 67% assessed this support as moderate.

The predominance of the "moderate" response suggests that students recognize the value of AI in developing their language competencies, yet do not view it as the primary driver of their progress. Rather, AI appears to function as a complementary resource that enhances, but does not replace, traditional learning methods.

These findings align with earlier conclusions drawn from the study: AI-based tools are perceived as meaningful support mechanisms within the learning process, but not as the dominant or central method of language instruction.

Figure 10. *The Role of AI in the Future of Foreign Language Learning*



Source: *Own elaboration.*

With regard to respondents' views on the future role of AI in foreign language learning, a clear majority (91%) indicated that artificial intelligence will play an increasingly important role in this area.

This finding reflects a high level of acceptance and a generally positive attitude toward AI as an educational technology. Despite the reservations and limitations identified in earlier responses, students appear to recognize the long-term relevance of AI in language education and anticipate its growing presence within academic practice.

5. Conclusions

The study confirms that artificial intelligence has become an established component of the educational environment of students of Romance philology. AI-based tools are widely used and significantly integrated into everyday practices of learning French. Students primarily perceive them as instruments that accelerate and support the process of knowledge acquisition, which reflects a high level of perceived instructional usefulness.

At the same time, artificial intelligence is not regarded as an alternative to the academic teacher. Respondents recognize its value in areas such as vocabulary and grammar practice as well as translation tasks, yet they emphasize the importance of direct interaction, cultural context, and the relational dimension of education.

These findings suggest that the most appropriate model for integrating AI into foreign language learning is a complementary one, combining technological support with traditional, teacher-led instruction.

The results further indicate that the use of AI-based tools may enhance the efficiency of the learning process, understood as achieving language competencies more quickly with comparable levels of effort. From the perspective of human capital theory, this may contribute to a more intensive accumulation of skills relevant to the labor market. At the same time, students' concerns regarding content accuracy and potential overreliance on technology highlight the importance of integrating AI in a critical and responsible manner.

In summary, within the studied group, artificial intelligence does not replace traditional forms of instruction but functions as a reinforcing element in the process of learning French. Its growing importance in higher education underscores the need for further empirical research and for a systematic approach to the integration of technology in foreign language pedagogy.

6. Implications for Educational Policy and University Management

The findings of the study indicate that artificial intelligence is already a tangible and widely used component of the academic learning process, particularly in the context of French language education. This reality carries important implications for both educational policy and institutional management within higher education.

First, the widespread use of AI-based tools suggests that universities should not treat them as marginal phenomena or merely as private student practices. There is a clear need to establish coherent institutional frameworks governing the use of artificial intelligence in teaching and learning.

Such frameworks should address ethical standards, academic integrity, and appropriate forms of AI-assisted work, while also incorporating digital literacy into study programs. The absence of systemic guidelines may result in inconsistent interpretations of acceptable use and unequal access to technological support.

Second, the perception of AI as a supportive rather than substitutive tool highlights the relevance of developing a hybrid (human + AI) model of education. From a managerial perspective, this requires investment not only in digital infrastructure but also in the pedagogical development of academic staff. Rather than competing with technology, the university teacher of the future must be capable of integrating AI thoughtfully into the learning process—leveraging its strengths in routine or repetitive tasks while focusing on higher-order competencies such as critical thinking, reflective analysis, and intercultural awareness.

Third, if, as students declare, AI accelerates learning and facilitates the acquisition of language competencies, it may contribute to improving the efficiency of educational investment. From the standpoint of educational policy, this raises the possibility of more effective human capital accumulation within higher education systems.

However, such potential gains must be supported by systematic monitoring of educational quality and by assessing measurable learning outcomes, rather than relying solely on self-reported perceptions.

Fourth, the concerns expressed by students—regarding language inaccuracies, lack of authentic interaction, and the risk of technological overdependence—underscore the importance of fostering critical and responsible use of generative AI tools. Institutional policy should therefore not only promote technological innovation but also cultivate awareness of AI's limitations and strengthen students' ability to evaluate the quality and reliability of generated content.

At the same time, it is essential to acknowledge the scope and limitations of the present study. The findings are based on a single group of students within a specific field of study and rely on self-reported data. While they provide valuable insight into students' attitudes and experiences, they do not allow for broad generalizations.

For the further development of educational policy, it would be advisable to conduct larger, multi-institutional studies encompassing different disciplines, levels of study, and types of higher education institutions. In particular, combining survey-based research with analyses of measurable learning outcomes would allow for a more comprehensive evaluation of AI's impact on educational effectiveness.

In conclusion, artificial intelligence is emerging as a significant factor in the ongoing transformation of higher education. Its effective and responsible integration into academic practice requires a coherent institutional strategy, investment in staff competencies, and continued empirical investigation. Only under such conditions can AI meaningfully contribute to enhancing educational quality and strengthening human capital in a knowledge-based economy.

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