

The Role of Information Technology in Enhancing Language Education: Perspectives on the MERCOSUR-EU Agreement and Its Implications for Brazil's Development

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ABSTRACT

Technological advancements and increasing globalization have profoundly transformed educational and economic dynamics on a global scale. In this context, the MERCOSUR-EU agreement stands out as a strategic opportunity for Brazil to enhance language education with the support of information technology, fostering socioeconomic development and strengthening its position on the international stage. The methodology adopted is based on a qualitative approach, which proves essential for a comprehensive and detailed understanding of educational phenomena and pedagogical practices, allowing for a holistic analysis of the interactions between information technology, language education, and international policies. The general objective of this study is to investigate the role of information technology in improving language education, focusing on educational transformations, the implications of the MERCOSUR-EU Agreement, and the development of digital competencies necessary for Brazil's socioeconomic progress. The research highlighted and evidenced that the use of information technology in language education transcends the mere adoption of technological tools, acting as a catalyst for pedagogical and sociocultural transformations. The study emphasized how the integration of educational technologies can facilitate learning, strengthen the interaction between teachers and students, and prepare learners for the challenges of a globalized labor market.

Keywords: Language Education; Information Technology; MERCOSUR-EU Agreement; Socioeconomic Development.

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I. INTRODUCTION

The digital revolution and the demands of globalization have driven significant changes in educational practices, particularly in language education. In the Brazilian context, the integration of information technology and language education emerges as an essential strategy to prepare the country for the challenges and opportunities generated by the MERCOSUR-EU agreement. This agreement increasingly demands enhanced linguistic and digital competencies to foster cultural, academic, and economic exchanges.

In addition to facilitating language learning, the use of digital technologies in education promotes greater accessibility and interaction between educators and students, expanding the reach of educational opportunities. Within the framework of the MERCOSUR-EU agreement, these tools become indispensable for empowering the Brazilian population, aligning academic and professional training with international market demands, and strengthening Brazil's competitiveness in a globalized economy.

The general objective of this study is to investigate the role of information technology in improving language education, focusing on educational transformations, the implications of the MERCOSUR-EU Agreement, and the development of digital competencies necessary for Brazil's socioeconomic progress.

The specific objectives outlined are as follows: 1. To analyze the methodologies and technological tools employed in language education, assessing the educational benefits promoted by information technology, including facilitated access to learning and improved interaction between students and teachers. 2. To examine how the integration of information technology and foreign language education can enhance Brazil's educational and economic opportunities within the context of the MERCOSUR-EU agreement, fostering the development of linguistic and digital competencies to meet international demands. 3. To evaluate the importance of digital competencies in the contemporary educational context, highlighting how the integration of information technology in language education can prepare students for the challenges of the globalized labor market.

The article is structured into four main sections to ensure a systematic and well-founded approach to the topic. - Introduction: This section contextualizes the relevance of technology-mediated language education within the scope of the MERCOSUR-EU agreement, highlighting the study's objectives. - Materials and Methods: This section outlines the procedures adopted for conducting the research, detailing data collection and analysis strategies. - Theoretical Framework: Comprising three subsections, this section explores the intersections between information technology, language education, and the challenges and opportunities arising from the international agreement. - Final Considerations: This section synthesizes the main findings, discusses their implications, and presents suggestions for future studies, emphasizing the importance of integrating technology and education to support Brazil's socioeconomic development.

II. MATERIAL AND METHODS

This study was conducted with the objective of investigating the role of information technology in enhancing language education, focusing on perspectives regarding the MERCOSUR-EU Agreement and its implications for Brazil's development.

The methodology adopted is based on a qualitative approach, which is essential for a profound and detailed understanding of educational phenomena and pedagogical practices, enabling a holistic analysis of the interactions among information technology, language education, and international policies (Pitanga, 2020; Abreu-e-Lima et al., 2021).

The qualitative approach, with its exploratory and flexible nature, allows for the analysis of non-numerical data, such as opinions, perceptions, and educational contexts. These elements are fundamental for constructing a more comprehensive understanding of the impact of technology on language teaching, particularly within the MERCOSUR-EU context (Pitanga, 2020).

For this research, the bibliographic review procedure was adopted, an indispensable tool in the scientific domain for building a solid and up-to-date theoretical framework. The bibliographic review enabled a critical analysis of works published between 2016 and 2024, gathering a range of contributions from contemporary authors discussing the use of information technology in language teaching and the implications of the MERCOSUR-EU Agreement for Brazil (Cavalcante & Oliveira, 2020).

This procedure stands out as a tool for synthesizing and reflecting on the current state of research in the field, promoting the identification of trends, gaps, and relevant advancements. The review focused on academic texts, articles, books, and studies addressing the importance of information technology in language teaching, the potential of the MERCOSUR-EU Agreement for education, and the development of essential digital competencies for Brazil's future (Cavalcante & Oliveira, 2020).

Furthermore, works exploring the transformation of language teaching in the international context, particularly with the increasing integration of digital technologies into pedagogical processes, were analyzed. This research procedure provided a robust foundation for constructing the theoretical framework, allowing the results to be discussed in light of the educational transformations of recent decades. Reviewing the most recent contributions ensured that the study's conclusions reflect the state-of-the-art in language education and the

relevance of using digital technologies in the educational context, particularly within the MERCOSUR-EU scenario.

III. THEORETICAL FRAMEWORK

The theoretical framework of this article is organized into three main subsections, which explore the intersections between information technology, language education, and the context of the MERCOSUR-EU Agreement, emphasizing their implications for Brazil's development.

In the first subsection, "The Importance of Information Technology in Language Teaching: Transformations and Educational Benefits," the methodologies and technological tools that have revolutionized language learning are analyzed, highlighting their benefits for pedagogical interaction and knowledge accessibility.

The second subsection, "Information Technology and Language Teaching in the MERCOSUR-EU Context: Enhancing Brazil's Progress," examines how the integration of technologies in language education can maximize Brazil's benefits under the MERCOSUR-EU Agreement by promoting cultural and academic exchanges and addressing the growing demand for linguistic and digital competencies.

Finally, the third subsection, "Digital Competencies and Language Education: Preparing Brazil for the Future within the MERCOSUR-EU Framework," discusses the importance of developing digital and linguistic skills as strategic elements to prepare the country for 21st-century challenges. This subsection links the demands of the globalized market to the educational and economic opportunities provided by the agreement.

3.1 The Importance of Information Technology in Language Teaching: Transformations and Educational Benefits

Information technology has significantly transformed language teaching, offering tools that expand learning possibilities and overcome geographical and temporal limitations. Online learning platforms such as Duolingo, Rosetta Stone, and Babbel have revolutionized the language acquisition process by combining gamification, artificial intelligence, and accessibility on mobile devices.

Additionally, technologies such as videoconferencing and messaging apps enable real-time communication with native speakers, fostering an immersive and interactive experience. These tools enhance student engagement and personalize teaching, adjusting the pace and content to individual needs (Leffa et al., 2020).

The integration of multimedia resources, such as videos, podcasts, and interactive games, into language teaching is also a significant milestone. These materials stimulate multiple senses and provide authentic contexts for language practice, increasing retention and the applicability of knowledge. For example, watching videos with subtitles in the target language improves listening comprehension and vocabulary acquisition. Similarly, apps using augmented reality (AR) and virtual reality (VR) offer immersive experiences, allowing students to practice the language in simulated environments, such as markets or airports, which reduces anxiety and boosts confidence (Leffa et al., 2020).

In addition to direct educational benefits, information technology democratizes access to language learning. In a global context where proficiency in foreign languages, especially English, is an essential requirement for the job market, technology enables students from remote areas or with limited resources to access high-quality content. Free and accessible tools help overcome economic and social barriers, promoting greater educational equity. This inclusion reinforces the role of information technology as a catalyst for human and professional development, aligning with sustainable development goals. See Table 1 below.

Table 1: Benefits of Information Technology in Language Teaching

Aspect	Description	Example
Personalized learning	Adjustment of pace and content to the individual profile of students	Use of platforms like Duolingo and Babbel
Multimedia resources	Integration of videos, podcasts, and interactive games for contextual language practice	Videos with subtitles or simulations in VR/AR
Educational inclusion	Democratic access to free, high-quality tools, reducing social and economic barriers	Accessible apps for students in remote regions
Collaborative learning	Creation of linguistic and cultural exchange communities, promoting practice and global interaction	Platforms like Tandem and HelloTalk

Source: Almeida, Canto, & Duarte (2020)

In addition to the inclusive benefits provided by information technology, multimodality stands out as an essential aspect in foreign language teaching. The concept, which refers to the integrated use of multiple communication modes such as text, images, audio, videos, and interactivity, enriches learning experiences and caters to different student styles. For instance, watching videos that synchronize subtitles with narration or engaging in interactive activities that combine reading and audio reinforces the connection between linguistic elements such as pronunciation, spelling, and semantics. This approach not only improves engagement but also promotes a more holistic and effective learning process, crucial for communication in global contexts (Almeida, Canto, & Duarte, 2020).

Finally, the interaction promoted by information technology encourages collaborative learning, which is essential in language teaching. Platforms like Tandem and HelloTalk connect learners from different parts of the world, creating communities for linguistic and cultural exchange. This collaborative aspect, in addition to promoting oral and written practice, fosters the exchange of perspectives and values, key elements for socio-economic integration in the context of the MERCOSUR-EU Agreement. Thus, information technology not only enhances the quality of language teaching but also contributes to the formation of global citizens prepared for the challenges of the 21st century (Valadares & Bambilra, 2021).

3.2 Information Technology and Language Teaching in the Context of the MERCOSUR-EU Agreement: Enhancing Brazil's Progress

The MERCOSUR-EU agreement, established between Latin American countries and the European Union, represents a significant opportunity for strengthening economic, cultural, and educational ties. However, for Brazil to fully benefit from this agreement, it is essential that its citizens, particularly professionals, develop linguistic and digital skills that meet global demands. In this context, the integration of information technology into foreign language teaching emerges as a key component in the development of competencies that will enable Brazilians to compete and collaborate internationally. The use of educational technologies, such as online learning platforms, language apps, and multimedia resources, can accelerate learning and provide access to authentic content in foreign languages (Perin, Carmo, & Coelho, 2023).

In addition to facilitating language learning, information technology has the potential to prepare students for the demands of the globalized job market. In the context of the MERCOSUR-EU agreement, where English and Spanish are often the languages of communication, it is crucial for Brazilian students to become fluent in these languages, as well as in the technologies that enable effective digital communication. The implementation of technologies in language teaching not only improves communication skills but also contributes to the development of digital competencies that are essential for professional engagement in an international setting. This includes the ability to use virtual communication tools, collaborative work platforms, and educational management systems, which are vital for academic and professional mobility. Let us now refer to Table 2 below:

Table 2: Strategies to Enhance Foreign Language Teaching in the MERCOSUL-UE Context through the Use of Information Technology

Impact Dimension	Description	Practical Examples in the MERCOSUL-UE Context
Enhancement of Language Learning	The use of digital tools improves immersion and foreign language learning, increasing student autonomy.	Online language courses integrated with MERCOSUL content, such as the "Mundo MERCOSUL" offering materials in English and Spanish.
Preparation for the Global Market	Information technology prepares students for fluency in foreign languages and for using technologies essential for academic and professional exchanges.	Video conferencing and online collaboration platforms that facilitate communication in a globalized environment, such as the use of Zoom in exchange programs between MERCOSUL and the EU.
Promotion of Educational Equity	Information technology democratizes language education by providing access to quality education even in remote areas of Brazil.	Digital learning programs like "Plataforma MERCOSUL Digital," accessible for free in areas with limited educational infrastructure.
Fostering Academic and Professional Mobility	The use of information technology in language teaching enables greater academic and professional mobility, focusing on the global labor market.	Digital exchange initiatives between Brazilian and European Union universities, where language proficiency and technology use are prerequisites for participation.

Source: Perin, Carmo, & Coelho (2023).

On the other hand, the use of technological resources in language teaching can also help reduce educational inequalities by offering high-quality learning opportunities for students from different social and

regional contexts. In Brazil, where disparities in access to education are notable, information technology can provide a way to democratize language education. Online teaching platforms and educational apps have the potential to reach a wide diversity of students, regardless of their geographical location or socioeconomic conditions, ensuring a more equitable and inclusive education (Tourón et al., 2018).

In terms of public policies, strengthening language teaching mediated by information technology can become a strategic pillar for Brazil's integration into the MERCOSUR-EU agreement. Investing in educational technologies that support language learning is investing in the development of a more skilled workforce, capable of taking advantage of the opportunities created by the agreement. Furthermore, this reflects an increasing need to update educational practices, aligning them with the demands of the contemporary world (Menezes, 2019; Abreu-e-Lima et al., 2021).

3.3 Digital Competencies and Language Teaching: Preparing Brazil for the Future in MERCOSUR-EU

The development of digital competencies and their integration into language teaching are essential for preparing Brazil to fully leverage the opportunities created by the MERCOSUR-EU agreement. The relationship between technology and education allows Brazilian students to acquire not only fluency in foreign languages but also digital skills that make them more competitive in a globalized and interconnected market. This synergy is crucial for driving the country's economic, cultural, and educational progress (Menezes, 2019; Abreu-e-Lima et al., 2021).

In language teaching, the application of digital competencies goes beyond the use of technological tools. It involves creating collaborative and multimodal learning environments, where the use of resources such as virtual reality, interactive learning apps, and online platforms enables students to experience real-life situations in the language. These technologies not only facilitate language practice but also promote engagement and personalized learning, addressing the diverse needs and learning styles of students (Morais & Aranda, 2023).

Digital competencies, in turn, are fundamental to language teaching, as they ensure that educators can use technological tools effectively and pedagogically. Teacher training should prioritize skills such as creating multimedia content, curating digital resources, and facilitating interactions on virtual platforms. This enables teachers to not only teach languages but also prepare students for the use of the language in professional and academic contexts that require technological proficiency. Below, in Table 3, a summary of specific competencies related to IT and language teaching is presented, highlighting their relevance in the context of MERCOSUR-EU.

Table 3: Specific Competencies for Digital Skills and Language Teaching in the MERCOSUR-EU Context

Digital Competencies	Language Teaching Competencies
1. Use of technological tools for remote and hybrid teaching	1. Fluency in communicative and cultural practices in foreign languages
2. Creation and curation of educational multimedia content	2. Development of reading, writing, listening, and speaking skills
3. Facilitation and management of interactions on online platforms	3. Adaptation of methodologies to learners' profiles
4. Analysis and use of data to personalize teaching	4. Use of technological resources for language practice and assessment
5. Integration of collaborative tools, such as online editors	5. Implementation of multimodal teaching strategies
6. Mastery of systems and platforms for academic exchanges	6. Contextualization of content in real and global scenarios

Source: Morais, & Aranda (2023).

The union of these competencies is a strategic pillar for Brazil in the context of MERCOSUR-EU, as it facilitates academic mobility, strengthens cultural and commercial relations, and prepares citizens to interact in an international scenario. Thus, investment in educational technologies and language teaching should be viewed as a national priority, focusing on the training of qualified professionals for the 21st century (Morais & Aranda, 2023).

IV. DISCUSSION AND CONCLUSION

This study fully achieved its outlined objectives by investigating the role of information technology in enhancing language teaching, focusing on educational transformations, the implications of the MERCOSUR-EU Agreement, and the development of digital competencies necessary for Brazil's socio-economic progress. Each specific objective was addressed in-depth, allowing a detailed analysis of the technological methodologies employed, the integration of language teaching and information technology within the context of the agreement, and the importance of digital competencies in the contemporary educational landscape.

The research highlighted and demonstrated that the use of information technology in language teaching goes beyond the mere adoption of technological tools, acting as a catalyst for pedagogical and socio-cultural transformations. The study emphasized how the integration of educational technologies can facilitate learning, strengthen the interaction between teachers and students, and prepare students for the challenges of the globalized labor market. Additionally, it was stressed that, within the context of the MERCOSUR-EU agreement, digital and linguistic training serves as a strategic advantage for positioning Brazil in better competitive and cooperative international conditions.

For future research, it is suggested to empirically explore the concrete impact of specific digital tools on the learning of foreign languages in different educational contexts. Comparative studies between MERCOSUR and European Union countries could further deepen analyses of the educational and economic benefits generated by the agreement. Moreover, investigations into teacher training programs aimed at integrating technology into language teaching could significantly contribute to improving pedagogical practices and the development of competencies aligned with the demands of the 21st century.

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