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## NATIVES AND DIGITAL MIGRANTS: THE TECHNOLOGICAL DOMAIN IN THE FORMATION OF FUTURE GENERATIONS

### DIGITAL NATIVES AND MIGRANTS: THE TECHNOLOGICAL DOMAIN IN THE TRAINING OF FUTURE GENERATIONS

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#### Summary

Contemporary information technology requires the reformulation of school routines aimed at optimizing student, teaching and institutional performance and, concomitantly, the elaboration and alignment of pedagogical and curricular strategies tailored to Web 3.0 platforms, which enable synchronous and asynchronous collective virtual interactions and the use of cognitive tools such as, for example, generative artificial intelligence. This scenario appears to be natural for the contemporary generation of students, the so-called digital native, while it can impede the relationships, interactions, curricula and didactic pedagogical performance of the generation of teachers that precedes it, this digital migrant. This study aims to investigate how technologies are being applied in educational institutions and what their pedagogical and curricular contributions are.



As support for the bibliographic review and theoretical construction of this study, Google Scholar, Digital Library and University Journals were used. Additionally, other databases, books, monographs and online journal articles were also explored. Finally, this article substantiates the urgency for educational actors to master the new technologies that emerge in teaching spaces, considering that several activities previously carried out in non-virtual modalities now take place in digital environments, the native habitat of future generations.

**Key words:** Education; Teaching; Information Technology; New technologies; New methodologies.

### Abstract

Contemporary information technology requires the reformulation of school routines aimed at optimizing student, teacher, and institutional performance. Concurrently, it necessitates the development and alignment of pedagogical and curricular strategies shaped by Web 3.0 platforms, which enable collective synchronous and asynchronous virtual interactions and the use of cognitive tools such as generative artificial intelligences. Such a scenario is natural for the contemporary generation of students, known as digital natives, while it can hinder the relationships, interactions, curriculum, and didactic pedagogical performance of the preceding generation of teachers, referred to as digital migrants. This study aims to investigate how technologies are being applied in educational institutions and what their pedagogical and curricular contributions are. Google Scholar, Digital Library, and University Periodicals were used as support for the literature review and theoretical construction of this study. Additionally, other databases, books, theses, and articles from online journals were also explored. Finally, this article underscores the urgency for educational actors to master the new technologies that are emerging in spaces, considering that various activities previously carried out in non-virtual modalities are now taking place in digital educational environments, the native habitat of future generations.

**Keywords:** Education; Teaching; Information Technology; New Technologies; New Methodologies.

### Introduction

New technologies are increasingly being used in classrooms, and this needs the attention of teachers and school institutions as things that were previously done offline are now being done online.

The Internet and Web 2.0 have opened up a multitude of new technologies and ways of interacting and working together. These need the attention of schools and teachers, according to the study, computers, mobile devices and digital media are being used more in classrooms instead of older methods.

The student, the teacher and the educational institution play a role in the technology used in education, as it is impossible to learn without great technical support, but the efficient use of technology in education requires the continued training of teachers, making its misuse unlikely.

It is important that there is some way of being able to direct and allow children to understand technology not just as entertainment or distraction, but that they also understand, in this early stage of life, where they discover the world around them, that technological resources can be an ally in the development of teaching and understanding.

Therefore, it is necessary for schools and teachers to seek to insert the Information and Communication Technologies as a pedagogical and cognitive tool, because in digital culture, the school loses part of its role as holder of knowledge, as it is available within reach, therefore it is essential that technological resources and devices are part of the pedagogical tools (FARDO, 2013, p. 34).

Teachers must be willing and able to incorporate new technologies into their lessons and plans, constantly improving their methods with the help of educational technology devices, and students must know how to separate entertainment from studying, using what is given to them in a practical way. responsible.

Therefore, this study aims to identify the contributions of new technologies to education as well as relate this interactivity with the school curriculum, for this it is necessary to identify the impacts of new technologies on education, as well as investigating their use by teachers.

The type of research carried out in this work was a literature review, in which a consultation was carried out on books, dissertations and scientific articles selected through a search in the following databases, Google Scholar, Digital Library, UFSC Periodicals, among other materials that were made relevant to this study The theoretical foundation was based on a bibliographical survey of articles from online journals, books, monographs and databases relevant to the investigation.

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### 1.1 Insertion of new technologies in the teaching-learning process

Pedagogical practice aims to transform teachings into information for students and, as a result, some techniques are developed to make the best use of them and, thus, achieve the best results in the teaching-learning process.

Freire (1999) talks about teaching that this is important for research, criticism and rigorous methods of respecting the student's knowledge and ethical values, therefore, when neuroscience analyzes brain function in an attempt to express how people learn, and the behavior of neural functions when exposed to new information gives teachers an idea of how they can improve teaching methods to design effective learning for students.

Given technological advances and the identification of young people with these new technologies, it is necessary for teachers to follow this technological evolution so that their teaching methodology does not become outdated and end up demotivating students.

In this sense, it is important to create timely paths to achieve an education that is more aligned with current developments. According to Scorsato (2016), "circumstances, social, cultural, political and economic relations have changed, but some teaching processes remain stagnant, requiring new pedagogical ideas".

Knowing that student learning is due to the way they interact with the environment in which they are inserted, the teacher and the resources available, it is necessary for them to have access to new technologies. This access in the school environment will favor "ways of learning and teaching", therefore it is undeniable how important the use of these technologies is today, as through it information multiplies, there are no limits of time and space, it connects people, events and information in an instant and inclusive way (COSTA, 2018).

The so-called "digital natives" form the generation that grows up with the digital revolution and electronic games. electronic devices used as entertainment are an integral part of the construction of their culture (AZEVEDO, 2012).

The term "digital natives" was introduced by Marc Prensky in his article "Digital Natives, Digital Immigrants" (2001). Prensky argued that individuals who grew up around digital technology have an innate familiarity with digital tools, due to early exposure and constant contact with these technologies.

However, it is important to highlight that there are debates and criticisms regarding the concept of "digital natives", where Sonia Livingstone, professor of Social Psychology at the London School of Economics, and Julian Sefton-Green, associate researcher at the University of Oslo, argue that The term is very simplistic and generalized, which emphasizes that the ability and access to digital technologies vary among young people, and that there are digital inequalities that need to be considered.

The discussion about the relationship between technologies and the teaching-learning process is very important, as today the educator has a wide variety of technologies at their disposal, which is why they need to learn how to use them in the classroom, since the teacher is the mediator of the teaching-learning process, therefore, it is up to him to look for motivational methods for his students to learn with new technologies.

Information and communication technologies are all the tools available and used to manage information and promote communication, such tools, when incorporated into education, are tools that can facilitate teaching and learning processes, in addition to developing and facilitating the construction of information related to the technical community in which the students are inserted (MATTAR, 2013).

According to Almeida (2011), the integration of technology does not just involve computers and the internet in the classroom, it is necessary to transform teaching and learning processes, curriculum and knowledge relationships.

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Still citing the same author, this integration goes further and involves a transformation of teaching and learning processes, the school curriculum and knowledge relations.

This perspective highlights the importance of considering technology as a tool that can enhance and improve the educational experience, instead of seeing it as a mere addendum to the learning environment, as the simple presence of technological devices does not guarantee effective integration; it is necessary to rethink and redesign teaching methods, curriculum planning and the way knowledge is approached and constructed.

By integrating technology, it is possible to explore more interactive, collaborative and personalized approaches,



allowing students to have an active participation in the construction of knowledge. Furthermore, technology can facilitate access to a variety of educational resources, promote independent research and the development of essential digital skills for the contemporary world.

This broad and transformative approach to technological integration in education aligns with current discussions about the importance of rethinking pedagogical practice and adapting it to the challenges and opportunities brought by digital technologies

## 2.2 Active Methodologies in Education

We are living in an increasingly interconnected world, in which new forms of media, among tainment and information are shared instantly across the world through participatory communication networks.

This phenomenon has promoted greater connection between people, private companies and public institutions, resulting in a society and institutions that are moving towards an interconnected universe. The speed and scope of interactions and information exchanges have significant impacts on several areas of everyday life, and immediate access to news, events and entertainment influences the way we relate, make decisions and find out about the world around us.

This process of increasing connectivity also raises important questions about privacy, security and how we adapt to this constantly evolving environment, as global interconnectivity is shaping the way we communicate, interact and perceive the world, providing new opportunities and challenges to as we move towards an increasingly interconnected future.

MITRE et al. (2008) notes that as society is changing so quickly, traditional teaching methods in education need to be updated, where the truths that scientific knowledge offers may be provisional or temporary, due to the speed at which changes occur in society.

Many schools still use traditional teaching methods, such as classrooms being referred to as the place where everyone sleeps and one person talks. This arises from the fact that teaching can end up being reduced to the moment of the lecture, disregarding the action of teaching.

Teaching can happen repetitively, with classes being composed of the students' outbursts. tutors and listening students, generally not very motivated. While in Brazil, most university professors still use traditional teaching methods that have existed for years, although these methods have been established a long time ago, they are not aligned with the needs of students in the learning process (CUNHA, 1997).

These methods and practices not only make it difficult for students to learn, but they also do not contribute much to the progression of the learning process. Instead of reflecting and analyzing learned knowledge, learning is generally measured by the amount of information a student can remember and recite during exams (PIMENTA; ANASTASIOU, 2002).

Although it is important to mention that the relationship between technology in the classroom and the adoption of Active learning methodologies require a more in-depth analysis, some authors have contributed to this discussion.

According to Jonassen (2006), the mere presence of electronic whiteboards or other technologies does not guarantee the effective implementation of an active approach, where he argues that it is necessary to consider how these tools are used in the educational context, highlighting the importance of promoting active participation from the students.

The view of the teacher as a mere transmitter of information and the student as a passive receiver is discussed by Vygotsky (1978) in his sociocultural theory, emphasizing the importance of social interaction and the collective construction of knowledge, highlighting the role of the teacher as a mediator of learning.

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On the other hand, authors such as Johnson, Johnson and Smith (1991) highlight the importance of collaborative learning as an active methodology, arguing that teamwork and interaction between students promote the development of cognitive, social and emotional skills.

Interdisciplinary methodologies, which encourage the connection between different disciplines, are addressed by authors such as Morin (1999), arguing that the fragmentation of knowledge into isolated disciplines harms the understanding and practical application of concepts, defending the need for a more integrated approach. and holistic.

The game is a voluntary act or activity, carried out within certain limits of time and space, in terms of freely permitted but totally obligatory rules, given its own conclusion, accompanied by a feeling of tension and happiness (HUIZINGA, 1993).

Prensky (2012) defines the game as a subset of entertainment that contains one or more characteristics, such as: rules, goals or objectives, results and feedback. The game is natural to humanity and can be considered a "primary and undeniable category of life, preceding culture, and it has evolved in the game" (HUIZINGA, 2007, p. 33).

Some researchers have been working on the concept of games for educational purposes, highlighting, among other things, the relationship between games and motivation and participation for individuals. According to Alves (2015), learning and technology have many similarities, after all, both want to facilitate complexity.

According to Gee (2009), games are tools that encourage and engage their users to spend hours at work to achieve a goal. Some of the learning principles developed in games are: ownership, collaboration, productivity, risk, problems, challenges and integration.

The idea that the use of games or related activities allows students to get involved in school activities that they consider boring cannot be avoided, as the use of games can bring the student's learning process closer to their reality.

Firstly, because it encourages carrying out activities to progress in the study with the aim of earning rewards and, secondly, because it is easy to access, considering the possibility of using cell phones, tablets and computers. and interaction is directly related to the adequacy of content, people and the way learning is encouraged. Gamification, also known as *gamification*, aims to use game concepts and mechanics oriented to engage specific audiences, solve real problems and facilitate learning, being defined as "use of electronic game design elements in contexts not related to electronic games" (GEE, 2004).

From this point, it can be seen that gamification is not just another name for educational games. It uses game components and applies these elements to the field in which they are used.

The true objective of gamification is to increase an individual's interest and/or efficiency in the realization of a given action. Therefore, it is widely used as a behavioral stimulus or motivator for the target audience.

Viana et al (2013) agree that, through gamification, people interact more easily, coexist, are motivated and are more open to learning more effectively. This practice "incorporates the use of game mechanics in non-game contexts, that is, outdoor games, creating challenging, fun and entertaining learning environments".

Studies on the use of games and game elements in the field of education have been carried out for decades, but in recent years interest in the subject has grown rapidly. It is possible to see visual games aimed at learning, but gamification has not yet been explored in school environments (TOLOMEI, 2017).

It should be noted that a well-used challenge can be an inspiration when a child, on the way home, plays and doesn't crack just to make the trip seem fun, and it is actions like these that should be used by the school. If homework should be done in a certain way, why not improve it to make it fun, as can be seen in other areas such as social media, this idea is reinforced when Trevisan (2013), questions whether this is a century of entertainment, how can we use it to benefit education, advertising and society?"

Gamification is a very recent term, still being tested in the field of education, but promising due to some of its characteristics. To understand its meaning, you need to turn to the word game, which is closely related to sports and the entertainment industry.

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This term, for some years now, has been a concept widely used in the industrial and advertising areas, to increase employee engagement or customer loyalty in a given company, or even training or qualifications, still little used in the field of education, but with its use in the way of playing and teaching must be taken seriously by teachers, especially as technology advances, with major improvements in student reality.

Taking this approach to playing in academic activities can not only motivate students in relation to the subjects they are learning, but also promote eternity in the educational environment, as games encourage the effort to achieve a certain objective, while at the same time providing entertainment.



According to Tolomei (2017), the idea that the use of games or activities such as games favors involvement of students in school activities considered boring is inevitable, as the use of games can bring the student's learning process closer to reality.

First, because it encourages carrying out activities to advance in study with the aim of earning rewards and, second, because it is easily accessible, it is considered possible for use on cell phones, tablets and computers.

The use of games often tends to challenge people to overcome them, so that they do not lose sight of the obstacles they encounter along the way, even the most difficult ones. Therefore, the inclusion of gamification material provides a level of engagement that is difficult to achieve in traditional teaching methods. However, according to the author, we can then come to the conclusion that if we apply the motivating aspects of the game in contextual and non-game activities, and this is done through gamification, we can obtain the same interest and engagement found in Gamification . games and other sources of information.

Gee (2015) reports that the principles developed and used in games are: appropriation, collaboration, production, risk, problems, challenges and integration, contexts presented in games and providing a learning process in a context, involving players to engage with the nature, environment and other people. Being a good engagement tool, as its users can play for hours, with the aim of achieving a goal.

However, according to Fardo (2013), gamification is not the creation of a game that addresses a specific problem, rehabilitating the world, but rather using the same strategies, methods and ideas used to solve global problems in situations in the real visible world. .

### 3 Conclusions

The importance of well-trained teachers in educational institutions goes beyond the simple presence of technological resources in the school environment, even if a school has access to cutting-edge technology, if teachers are not adequately trained, the results will be fruitless.

Likewise, even if teachers are well trained, if they work in an unfavorable environment, with a lack of resources or a bad climate, the impact of changes and innovations will be limited, therefore **It is crucial that there is investment in both teacher training and school infrastructure.**

A school environment conducive to the use of new technologies must provide the necessary tools and finance the appropriate infrastructure for their implementation, where teachers, in turn, need to be open to the use of constantly evolving technologies and seek the necessary training to make the most of them. these tools in your pedagogical practice. Furthermore, it is important that students are also guided about responsibility when using technology, learning to separate entertainment from studies and making conscious use of the tools available.

Gamification in education is an approach that has been explored recently and there is still a lot to be learned about its impact on teaching and learning, as it involves applying game elements in educational contexts, aiming to engage students and promote an environment of learning more dynamic and motivating.

Digital natives, who are students born into an era of digital technology, can especially benefit from this approach as they are familiar with digital interaction from an early age.

Gamification in the classroom can be an excellent strategy to assist students in the learning process, especially those with disabilities or difficulties. It can be used as a tool to make learning more accessible and fun, contributing to a more accessible school environment. inclusive. Furthermore, gamification can also promote healthy competition between students, stimulating engagement and enabling real-time feedback between teachers and students.

In short, the integration of technologies in education requires not only resources, but also trained teachers, a favorable environment and students' awareness of the responsible use of technologies.

Gamification emerges as a promising approach to improving the teaching and learning experience, providing a more stimulating and engaging environment for students, however, it is essential to continue research and explore its full potential in improving educational processes.

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### 4 Final considerations

Research is a fundamental pillar to drive progress and promote advances in all areas



knowledge, so in the educational context, research plays a crucial role in the search for innovative and effective solutions to improve teaching and learning processes.

Encouraging future research is essential to continue improving education and facing the challenges that arise in a world in constant transformation.

Educational technologies, for example, have the potential to revolutionize the way we teach and learn, but there is still much to be discovered and explored in terms of their effective application and their impacts on student learning.

By encouraging future research, we open doors to new discoveries and valuable insights, so we must investigate how gamification can be implemented more effectively, considering different educational contexts and student needs, and can explore the benefits of using virtual and augmented reality in classroom, investigating how these technologies can improve student understanding and engagement across different subjects.

Additionally, the research allows us to analyze the impact of innovative pedagogical approaches such as project-based learning, blended learning, and personalization of learning.

We can therefore examine the benefits of using artificial intelligence and data analysis to adapt teaching to the individual needs of students and can also explore the effectiveness of different assessment strategies, taking into account the diversity of skills and learning styles.

Future research can also help us better understand social interactions in the classroom and the impact of interpersonal relationships on the learning process, and should investigate how collaboration between students can be improved and how to promote an inclusive and equitable learning environment.

By encouraging future research, we are investing in building a brighter educational future, where research findings can inform educational policy and practice, enabling educators and policymakers to make evidence-informed decisions.

Therefore, I invite all education professionals, researchers and interested parties to continue exploring and investigating new possibilities, challenges and solutions in the area of education, as only through constant research and the search for knowledge can we create an increasingly more educational environment. enriching and impactful for future generations.

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