

Digitalization And Participation In Education: Opportunities, Challenges, And Initiatives In The Digital World

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Abstract:

Background: Digitalization has become a central element in the transformation of the educational sector, offering opportunities to enhance the participation of students and educators while making access to education more equitable. However, this transition also presents significant challenges that must be overcome to ensure that all students can benefit from digital technologies.

Materials and Methods: This article investigates the research perspectives and applications in the field of digitalization in education, focusing on initiatives that promote digital inclusion. The methodology employed followed a qualitative approach, adopting a literature review to critically analyze relevant works in the field.

Results: The general objective of the study is to analyze the opportunities and challenges of digitalization in the educational sector, highlighting the participation of students and educators in this context and the initiatives that promote digital inclusion.

Conclusion: In conclusion, this study reaffirms the relevance of digitalization in education as a promising pathway to increase social participation and foster meaningful learning. However, it is essential that educational policies are implemented in a way that addresses existing inequalities and ensures that all students have access to the same opportunities.

Key Word: Digitalization; Education; Digital Technologies; Educational Policies.

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I. Introduction

Digitalization processes in education provide the opportunity to enhance educational participation in society by making educational offerings accessible to a broad base, regardless of space and time, and can specifically support certain groups with special needs¹.

Similarly, competencies for social participation and engagement in society can be promoted through the use of digital media. However, these outcomes cannot be achieved solely through digital media; they are part of

more complex processes where, for example, didactic considerations, the application of new technologies in educational organizations, the creation of access to digital media, and new forms of educational cooperation combine with a stronger connection between formal, non-formal, and informal education².

The justification for this study lies in the urgent need to understand how digitalization can be effectively integrated into the educational system to promote more inclusive and equitable participation. Given the social inequalities and rapid technological evolution, it is essential to investigate the opportunities arising from digitalization and the challenges that must be addressed to ensure that all students have access to the same educational opportunities.

The methodology employed in this article considered a qualitative approach aimed at deeply exploring the contributions of Educational Science to educational research, particularly in the context of a sustainable society. To achieve this objective, the research procedure adopted was a literature review that allowed for a critical and systematic analysis of relevant works in the field. The general objective of this article is to analyze the opportunities and challenges of digitalization in the educational sector, highlighting the participation of students and educators in this context and the initiatives that promote digital inclusion. To this end, specific objectives were established: to investigate different research perspectives related to digitalization in education; to examine initiatives, projects, and digital platforms that have been implemented to promote student and educator participation.

The article is structured into four sections: Introduction, Materials and Methods, Theoretical Framework, and Conclusion. This organization aims to provide a clear understanding of the dynamics involved in the digitalization of education and its implications for social participation within the educational environment.

II. Material And Methods

The approach utilized in the development of this article was qualitative, aiming to explore in depth the contributions of Educational Science to educational research, particularly in the context of a sustainable society. Creswell and Creswell (2018, p. 9) state that "qualitative research seeks to understand the human experience and the meaning that individuals attribute to their experiences³." To achieve this objective, the research procedure adopted was a literature review, which allowed for a critical and systematic analysis of relevant works in the field. According to Gil (2019, p. 10), "literature review is a survey of information already published on a specific subject⁴."

A total of 27 scientific works were researched, comprising articles published in reputable academic journals, papers presented at scientific events, and master's theses. This selection was conducted to ensure the diversity and quality of the consulted sources, providing a solid foundation for the discussions presented in this article.

The main authors who significantly contributed to this research include Bebbington (2021), Sádaba and Salaverria (2023), as well as Nunes and Malagri (2024). Based on the contributions from these authors, it was possible to identify the key trends and challenges faced by Educational Science in the current context, as well as their implications for educational practice and the promotion of sustainability.

III. Theoretical Framework

In this section, various research perspectives and applications in the thematic field of participation and digitalization in the educational sector are addressed, highlighting the opportunities and challenges that arise in this constantly evolving context. Digitalization has the potential to transform education by creating new forms of interaction and learning. However, it also presents obstacles that must be overcome to ensure that all individuals can benefit from these technological innovations.

Subsequently, participation in the digital world is explored, analyzing selected initiatives, projects, and platforms that have been implemented to promote the engagement of students and educators. Exemplary cases will be highlighted to demonstrate how these digital tools can facilitate communication, collaboration, and active learning, enriching the educational experience. Finally, this theoretical framework aims to provide a comprehensive understanding of the current dynamics shaping contemporary education. By examining the opportunities and challenges associated with digitalization and participation in the educational sector, we hope to contribute to the development of pedagogical practices that effectively integrate technology and promote meaningful engagement among all participants in the educational process.

Research Perspectives and Applications on the Thematic

Field In the current context, digitalization has become a central element in transforming the educational sector, bringing with it a series of opportunities and challenges that warrant careful analysis. The participation of students and educators in this digital environment is fundamental to the success of many contemporary pedagogical practices.

Thus, in the following subsection, we will address the implications of digitalization in education, exploring how this transition can facilitate inclusion and engagement while also presenting significant obstacles that need to be overcome. The discussion will focus on the various forms of participation that emerge with digitalization and the structural challenges that may limit access and effectiveness of these initiatives.

Participation and Digitalization in the Educational Sector: Opportunities and Challenges

Digitalization—much like education in general—cannot be conceived without reference to the society in which it occurs. Regarding issues of participation, this aspect becomes particularly evident; after all, analyzing the opportunities for participation among specific groups always involves examining the structural conditions that society provides and identifying areas where barriers or deficiencies exist⁵.

In recent years, various collective productions, manuals, and thematic editions have addressed the themes of digitalization and participation in the educational sector, revealing a wide range of topics that encompass, among others, inclusion, social participation and social inequality, democratic participation, competency issues, infrastructures, and political measures and regulations^{5, 6, 7, 8}.

Thus, participation can be defined as the empowerment to be part of society (digital), understood as the ability to contribute in an informed, active, and responsible manner to the construction of the world. As we emphasize, this is fundamentally an objective of personality development, regardless of the digitized contexts^{5,7}.

At the same time, the authors see in promoting participation through digital media a new and expanded potential for configuring learning spaces, collaborations, or for creating interfaces between humans and machines and support systems^{5,7}. The social relevance of digital participation is also addressed by Galvis and Carvajal (2022), who call for reflection on "the interactions and overlaps of social power discourses among different dimensions that generate inequality" from a pedagogical perspective as well as on the perception of interests and needs involved in media actions⁹. The following Table 1 lists four benefits resulting from digitalization in education and four obstacles that need to be addressed to ensure that all positive outcomes can be secured.

Table 1 – Benefits and Obstacles of Digitalization in Education

Benefits of Digitalization	Obstacles to Be Addressed
1. Expanded access to diverse educational resources, allowing students from different contexts to access a variety of content.	1. Inequality in access to technology and the internet, which may limit the participation of students from low-income and peripheral regions.
2. Personalized learning, enabling students to progress at their own pace and according to their learning styles, thereby enhancing the effectiveness of education.	2. Lack of training for educators to effectively utilize digital tools, which can compromise the quality of instruction.
3. Encouragement of collaboration and interaction among students and teachers through digital platforms, fostering a more dynamic learning environment.	3. Resistance to change from educators and institutions, which may hinder the implementation of new methodologies and technologies.
4. The possibility of real-time monitoring and assessment of student progress, allowing for quicker and more effective interventions in the educational process.	4. Concerns regarding the security and privacy of user data on digital platforms, which may generate distrust among students and parents.

Source: Modified from Bebbington (2021).

In light of the digital transformation of society and the world of work, digital participation is increasingly becoming a necessary condition for social participation, while the lack of digital engagement poses a risk of exclusion. Individuals at all stages of life are finding it increasingly difficult to escape the effects of digital transformation, as it impacts not only the workforce but all aspects of life, given that "more and more places and forms of communication are permeated by digital media"¹⁰.

Young people are often considered "digital natives"¹¹, attributed with the acquisition of digital competencies due to their upbringing in the digital age. However, studies such as the International Computer and Information Literacy Study (ICILS) 2018 demonstrate that neither age nor generation are decisive factors in acquiring digital skills; what is more significant is the social context and the opportunities and limitations that arise from it¹².

Digital competencies develop, like other competencies, through learning processes.

At all stages of life, there arises the challenge of supporting and accompanying individuals while utilizing different learning configurations to impart digital competencies. This encompasses all fields of education—formal education in general and vocational schools as well as higher education institutions, non-formal education in youth assistance organizations or adult education, and informal education within families, peer groups, or workplaces.

It is not merely about handling devices and using technology; regarding comprehensive digital competencies, Gil (2019) identifies six stabilizing axes that primarily pertain to information and reflection competencies, as well as aspects of content related to the use competency, which can serve as guidelines for pedagogical (educational) action: 1. Searching, processing, and preserving; 2. Communicating and cooperating; 3. Producing and presenting; 4. Protecting and acting securely; 5. Solving problems and taking action; 6. Analyzing and reflecting¹³.

According to Gil (2019), older generations of adults received an education characterized by predictability, rigidity, and almost absolute control by teachers. In this model, teaching was viewed as unchangeable, designed to be sufficient for both personal life and entry into the job market. However, the last few decades have brought profound transformations driven by the popularization of the Internet and the numerous opportunities it has begun to offer society. This change has been especially embraced by younger generations, who have adeptly explored the new dynamics provided by ICT—Information and Communication Technologies. With these innovations, the landscape of learning, interpersonal relationships, and the world of work has undergone a revolution¹³.

Since the early 21st century, nearly all activities have migrated to the digital environment in line with "dematerialization" policies. These policies have promoted the replacement of physical and analog supports with digital platforms, reflecting an adaptation to the demands of an increasingly technological and interconnected society. Furthermore, the impact of the Internet and ICT has not been limited solely to the technological sphere but has also profoundly altered forms of communication, collaboration, and even how knowledge is produced and shared¹³.

Given the increasing importance and differentiation of digital competencies, new dimensions of inequality emerge. According to Lucas and Moreira (2017, p. 11), digital participation and digital competencies

[...] do not arise from individual or random choices; they are shaped by where a person resides, their level of formal education, socioeconomic status, gender, disabilities, and residential status instability—often resulting from a combination of these factors. Thus, they are influenced by the unequal distribution of material, social, and cultural resources¹⁴.

However, Green et al. (2018) warn that the Internet lacks an official curator or centralized source of trust; therefore, it is up to each user to seek out, evaluate, and integrate the information found. This responsibility requires individuals to possess a set of essential competencies that include critical knowledge, analytical skills, and a proactive attitude to discern between valid content and that which may be harmful or deliberately misleading. Moreover, with the exponential growth of information available online and the increase in misinformation and fake news, developing critical thinking skills and digital literacy becomes even more crucial in order to navigate safely and effectively through a complex and dynamic virtual environment¹⁵.

Green et al. (2018, p. 25) emphasize the [...] dependency on educational capital in usage dimensions that include Internet-related activities concerning news consumption, general information research for daily life and leisure activities as well as education. For all three dimensions mentioned above, usage visibly increases significantly with individuals' educational levels¹⁵.

Digital transformation also offers new potentials for participation—and thus opportunities for inclusion—that can be analyzed from two aspects: on one hand, digital media can serve to mitigate disadvantages and expand or strengthen participation opportunities. Examples include the use of digital assistance systems aimed at individuals with disabilities as well as offering digital modalities of education or guidance for individuals with reduced mobility residing in remote areas or in contexts where face-to-face contact has been restricted, such as during the COVID-19 pandemic¹⁶.

On the other hand, social processes, interactions, and even forms of communication are increasingly shifting to the digital space; social media and interactive technologies, such as videoconferencing and internet platforms, enhance opportunities for participation and, therefore, for contributing to shaping social processes. For both aspects of participation opportunities, it is important to note that their utilization must be actively promoted, especially for individuals at risk of exclusion. In this regard, challenges also arise to support and accompany the processes of formal, non-formal, and informal education¹⁷.

In particular, the relationship between education, digitalization, and participation is frequently discussed in relation to youth—often in tension with the protection against the risks of digital media. Regarding children, Fernandes and Follone (2019, p. 25) discuss recommendations that address this tension: "Children need special protection on the Internet and should be educated on how to protect themselves from dangers and how to make the most of their use of the Internet. To this end, children must become digital citizens¹⁸."

Children's rights pertain both to access to information and content with social and cultural utility as well as to consideration of a variety of national and international cultural sources, alongside protection against content that may harm children's well-being¹⁸.

According to Viana, Maia, and Albuquerque (2017), the information society represents a new political, social, and economic configuration structured around networks and centered on the collection, organization, filtering, and distribution of data driven by information technologies. Social processes and functions are in constant and accelerated transformation, especially with the increased use of the Internet, which has further facilitated the exercise of freedoms related to information handling and forms of expression. In this context, the dissemination and perpetuation of news and data without restrictions of time or space have become a reality¹⁹.

Moreover, this society has changed the landscape of control over behaviors that were previously more easily monitored, particularly concerning children's exposure. What could once be managed more restrictively now presents unprecedented challenges due to digitalization and the omnipresence of social networks. An example of this is the possibility for third parties, such as schools, to share personal information about children online, including photos from events, competitions, and parties without parents or guardians being able to exercise the same level of control over these disclosures.

The authors assert that thus far, the information society brings not only advancements but also a need to reflect on ethical impacts and privacy concerns—especially regarding the protection of minors in an expanding digital environment¹⁹.

Regarding students' use of digital media, it is observed that digitalization "can contribute to dissolving the old demarcations of school in areas of spatial separation, social segregation, professional attendance, thematic concentration, and communication as well as in time division," but that "the potentials for promoting learning through digital media are still being underexplored"²⁰.

In light of the migratory movements of 2015/16, the potential role of digital media in crisis situations and for compensating disadvantages was also discussed. The importance of mobile phones became very evident—not only for maintaining contact with family in their country of origin but also for communication with peers and education professionals in Germany; equally important were applications for translations and learning German^{20, 21, 22}.

Subsequent studies have highlighted both opportunities for inclusion and risks of exclusion: Firstly, there are—especially in community shelters—restrictions on refugees' access to digital media; secondly, even among refugees, digital competencies "are varied and depend on factors such as cultural, social, and economic capital from their families"²³. Similar opportunities and analogous problems also manifest among individuals with disabilities or among youth living in residential institutions: on one hand, using digital media—for example for assistance or fostering social relationships—is particularly important for these groups; on the other hand, these populations often lack both access to and competencies for engaging with these media²⁴.

Thus, the risks of exclusion, in the form of the First and Second Level Digital Divide, primarily present themselves for groups that could significantly benefit from the inclusion opportunities provided by the use of digital media²⁴.

The intersection between inclusion opportunities and exclusion risks resulting from digital transformation in the educational sector became particularly evident during the COVID-19 pandemic: on one hand, great hopes were placed on partially compensating for the absence of in-person offerings through digital formats; on the other hand, as early as 2020, initial studies indicated the risk of exacerbating inequalities²⁴.

The focus of perception, both in the public sphere and in political and scientific debates, fell on schools, where in-person teaching had to be temporarily replaced or at least supplemented by digital formats²⁵.

However, for individuals in difficult living situations, the problems extended far beyond the realm of formal education:

Children and adolescents already facing significant challenges due to inequalities and a lack of participation opportunities—such as those with special needs, from families in poverty, or with migration histories—encountered additional difficulties with distance learning; preschool-aged children needed care at home; youth transitioning from school to the labor market lost practical experience opportunities crucial for the most vulnerable groups; accessible support and guidance for families through in-person interactions were largely suppressed²².

The participation opportunities for children and youth in formal education, as well as transitions to vocational education, are influenced not only by schools' equipment and use of digital media but are also strongly shaped by family conditions²².

Furthermore, a significant importance of non-formal education has crystallized in practice. For example, a study on preparing for transitions to vocational education found a variety of activities through which independent youth service providers reached and supported young people in their transition process with the help of digital tools²⁶.

In Brazil, the pandemic accelerated the digitalization of the educational system, further revealing existing inequalities within the country. In this context, the lack of technology and infrastructure emerged as one of the main challenges faced by students, particularly those from low-income families living in peripheral regions and rural areas¹.

It is observed that access to technology and the Internet in Brazil is unequal among different regions and social classes. Many students lack adequate devices and face connectivity limitations, which exacerbates disparities between the privileged and marginalized. Additionally, the absence of training for teachers in using digital tools and the lack of resources to develop appropriate educational materials further intensify educational inequality in the country¹.

Another important aspect is that for many Brazilian youth, school represents not only a space for learning but also a place for socialization, nourishment, and safety. The transition to remote learning deprived these students of an essential environment for their holistic development¹.

Therefore, Brazil requires a more comprehensive and inclusive approach to digitalizing education that considers not only protection but also usage conditions and real participation opportunities for vulnerable groups. This discussion emphasizes the urgency of public policies focused on digital inclusion, teacher training, and strengthening infrastructure so that education in Brazil can truly benefit from digitalization without leaving behind those who need it most¹.

On the other hand, the pandemic confirmed the importance of non-formal and informal education for social participation and inclusion—especially for groups at risk of exclusion. This reinforces the need for a comprehensive approach to education that considers not only formal education but also non-formal and informal education along with their interconnections when addressing the challenges posed by digital transformation in the educational sector. The necessity for both differentiated and integrative consideration of formal education (e.g., schooling), non-formal education (e.g., in contexts assisting children and youth), and informal education (e.g., within families) becomes evident as argued by Xavier & Prass (2022) and Nunes & Malagri (2024).

In Brazil, the pandemic sparked intense debates regarding digitalization in education, with the country facing similar and even more complex challenges. During this period, remote learning emerged as a temporary solution; however, structural and technological inequalities hindered inclusion and the continuity of learning for many students. The primary obstacle in the Brazilian context was the lack of adequate infrastructure, both in schools and homes, particularly in poorer regions and rural areas.

Policies aimed at implementing digital technologies during the pandemic in Brazil did not take into account regional and socioeconomic disparities. Furthermore, non-formal education, which serves youth and adolescents outside the traditional school system, was largely overlooked. Programs for academic reinforcement, cultural workshops, sports activities, and vocational training—essential for the holistic development of young people—suffered significant impacts without a clear plan for digitalization or adaptation to remote formats²⁷.

Another important aspect of the Brazilian scenario is the interconnection between education and social assistance programs. Formal education, especially for the most vulnerable populations, is often linked to initiatives supporting youth and families. During the pandemic, these programs, which include school meals and psychological support, were interrupted or reduced, highlighting the need for a more comprehensive approach that integrates both formal and non-formal education while providing necessary support to families and youth²⁷.

It is essential for the country to advance this debate with a broader perspective that considers the specificities of different age groups and the need for support for vulnerable youth and adolescents. Policies that promote digital inclusion, improve technological infrastructure, and strengthen complementary educational programs are fundamental to ensuring that lessons learned during the pandemic are effectively utilized²⁷.

Regarding the transition to vocational education, there is mention of using digital media for individualizing career guidance measures and promoting career choice competencies²⁶, but again without considering the role of youth assistance partners or employment agencies and their functions in supporting educational transitions.

Research reviews addressing digital participation in Brazil remain limited; however, there are studies that examine educational inequalities at various levels, such as the impact of public policies and access to technology. One of the most critical challenges was ensuring inclusive and participatory education during the pandemic when many students simply lacked means to participate in online classes due to inadequate equipment or poor internet connectivity.

Moreover, the concept of "participation" in Brazil extends beyond mere attendance in classes. It involves ensuring real learning opportunities and including students from diverse social and economic backgrounds. The country has a tradition of addressing educational inclusion; however, the pandemic revealed a significant gap between the intention of inclusive policies and practical realities—especially during times of crisis. With respect to special education and inclusion, Brazil has made progress in school inclusion policies over recent years; however, the pandemic interrupted many of these initiatives. Students with disabilities faced additional barriers such as a lack of adapted educational resources for the digital environment.

Finally, the issue of social inequality, which was already exacerbated before the pandemic, was intensified in Brazil during remote learning. The lack of infrastructure and the digital divide became more evident in historically marginalized areas, and international assessments such as PISA have revealed significant educational disparities. These inequalities necessitate that Brazil, like other countries, develop policies that promote equal access to technology and educational participation, taking into account the diverse socioeconomic and cultural realities. Therefore, the Brazilian scenario reflects many of the challenges highlighted in international research reviews, underscoring the urgent need to address digital and socioeconomic inequalities, ensuring that the digitalization of education is an inclusive, accessible, and participatory process for all students^{11, 17, 24, 27}.

Participation in the Digital World – Initiatives, Projects, Selected Platforms, and Highlights

The boundaries of digital and social participation in the future will no longer be defined between those who are online and those who are offline, but rather between those who actively shape digital transformation and those who wish to participate but cannot. To ensure digital participation—and thus increasingly social and community participation—it is insufficient to merely provide technical access or encourage greater internet usage.

The most important aspect is to empower individuals so that they can navigate the digital world autonomously and accurately assess risks. This also involves creating safe and comprehensible conditions that are particularly reliable for individuals who are distant from the internet. Informative measures about the opportunities, as well as the risks associated with digital offerings, would therefore be important approaches to enable as many people as possible to engage in the digital world as autonomous actors.

In the Brazilian reality, it is evident that the country faces similar challenges, but on a more acute scale due to socioeconomic inequalities and a lack of adequate digital infrastructure in various regions. Digital inclusion in Brazil remains a distant goal for many, especially in rural areas and poorer regions where access to the internet and electronic devices is still limited²⁸.

The COVID-19 pandemic exposed and deepened these inequalities, making the issue of digital inclusion even more urgent. In Brazil, initiatives such as the National Education Plan (PNE) and the Brazilian Strategy for Digital Transformation seek to promote inclusion and expand access to digital technologies. However, the implementation of effective programs is hindered by a lack of infrastructure, with many public schools lacking internet connectivity or having outdated equipment. Thus, Brazilian initiatives must first address access issues before advancing to matters of training and digital autonomy²⁷.

There is also a significant gap regarding adult and elderly education concerning technology use. Unlike other countries that have dedicated platforms and specific courses for this demographic, Brazil still lacks robust public policies addressing digital literacy for older age groups or vulnerable individuals, such as low-income communities and peripheral populations²⁸.

The digital inclusion of people with disabilities is also an urgent issue in Brazil. Although there are laws and guidelines for inclusive education, practical implementation remains limited. To promote true digital inclusion in Brazil, a coordinated effort among government, private sector, and civil society would be necessary^{28, 29}.

Actions such as distributing digital devices, expanding internet networks to rural and remote areas, and implementing digital literacy programs are fundamental. Awareness campaigns regarding digital security, data protection, and combating misinformation should also be integral parts of this strategy. Furthermore, Brazil needs to consider creating initiatives such as projects to support digital education for the elderly and people with disabilities, along with programs involving universities to create inclusive and innovative solutions. However, it is essential to recognize that the potential for digital transformation is significant; with appropriate public policies and investments in infrastructure and education, the country can make substantial progress in promoting digital inclusion for all its citizens²⁷.

IV. Conclusion

The study presented in this article fully achieved the established objectives, providing a detailed view of the opportunities and challenges associated with digitalization in the educational field. Through the analysis of various research approaches on the subject, it was possible to understand how the participation of students and educators can be enhanced through digital platforms and initiatives. The work also highlighted the importance of elements such as technological infrastructure, teacher training, and the integration of different types of education—formal, non-formal, and informal—to ensure fair and inclusive participation.

Among the main findings of the research, the identification of successful digital initiatives that promote inclusion stands out, along with the necessity for strategic planning that takes into account regional and socioeconomic particularities. The investigation also revealed that digitalization should be viewed as a means to achieve a more accessible and collaborative education that fosters the comprehensive development of students, rather than as an end in itself.

It is concluded that digitalization plays a crucial role in promoting a more participatory and meaningful education. However, to achieve equity, it is essential that educational policies are planned and implemented in

ways that reduce inequalities, ensuring equal access for all students. Future research should explore the impact of emerging technologies, such as artificial intelligence and augmented reality, on digital education. Additionally, studies examining the effectiveness of different digital platforms in various contexts may contribute to the development of more inclusive pedagogical practices.

Finally, investigating students' perceptions of their experiences with digitalization in learning could be essential for continuously improving strategies aimed at achieving equitable and quality education.

References

- [1]. Nunes, M. P., & Malagri, C. A. N. (2024). Digital Transformation In Hybrid Education: What Are We Doing In Latin America? *Educação Em Revista*, 40. Issn: 2236-5192. <https://doi.org/10.1590/0102-469848376>.
- [2]. Baxto, W., Amaro, R., & Mattar, J. (2019). Distance Education And The Open University Of Brazil: History, Structure, And Challenges. *International Review Of Research In Open And Distributed Learning*, 20, 99-115. Issn: 1492-3831. <https://doi.org/10.19173/irrodl.v20i4.4132>.
- [3]. Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, And Mixed Methods Approaches*. (5th Ed.). Thousand Oaks, Ca: Sage Publications. Isbn 978-1506386706.
- [4]. Gil, A. C. (2019). *How To Develop Research Projects*. (6th Ed.). São Paulo, Brazil: Atlas. Isbn 978-8597012613.
- [5]. Bebbington, W. (2021). Leadership Strategies For A Higher Education Sector In Flux. *Studies In Higher Education*, 46(1), 158-165. Issn: 0307-5079. <https://doi.org/10.1080/03075079.2020.1859686>.
- [6]. Farid, M. R., & Ebad, R. (2018). Transformation Of Higher Education Sector Through Massive Open Online Courses In Saudi Arabia. *Problems And Perspectives In Management*, 16 (2), 220. Issn: 1727-7051. [https://doi.org/10.21511/Ppm.16\(2\).2018.20](https://doi.org/10.21511/Ppm.16(2).2018.20).
- [7]. Cardoso, T. M. L., Pestana, F., & Castrelas, M. (2021). As Tecnologias Educacionais Em Rede À Luz Dos Quatro Pilares Da Educação: Uma Utopia Global? In Cavalcanti, P. A. (Ed.), *Educação: Teorias, Métodos E Perspectivas* (Pp. 24-36). Curitiba: Artemis.
- [8]. Bhadri, G. N., & Patil, L. R. (2022). Blended Learning: An Effective Approach For Online Teaching And Learning. *Journal Of Engineering Education Transformations*, 35 (1), 53-60. Issn: 2349-2473. <https://doi.org/10.16920/Jeet/2022/V35i1/22008>.
- [9]. Galvis, Á. H., & Carvajal, D. (2022). Learning From Success Stories When Using Elearning And Blearning Modalities In Higher Education: A Meta-Analysis And Lessons Towards Digital Educational Transformation. *International Journal Of Educational Technology In Higher Education*, 19 (1), 1-31. Issn: 2196-0739. <https://doi.org/10.1186/S41239-022-00325-X>.
- [10]. Frenkel, A., & Leck, E. (2017). Spatial Aspects Of Education-Job Matching In Israel. *Regional Studies*, 51(7), 1063-1076. Issn: 0034-3404. <https://doi.org/10.1080/00343404.2017.1308478>.
- [11]. Xavier, J., & Prass, F. S. (2022). Digital Natives: An Analysis Of The Contribution Of Electronic Teaching Tools As An Aid To Learning. *Revista Contemporânea*, 2 (4), 182-196. Issn: 2447-0961. <https://doi.org/10.56083/Rcv2n4-011>.
- [12]. Tezani, T. C. R. (2017). Digital Natives: Considerations About Contemporary Students And The Possibility Of Rethinking Pedagogical Practice. *Doxa: Revista Brasileira De Psicologia E Educação*, 19 (2), 295-307. Issn: 2594-8385. <https://doi.org/10.30715/Rbpe.V19.N2.2017.10955>.
- [13]. Gil, H. (2019). Digital Natives, Digital Migrants And Older Adults: Bridges To Inclusion. *Educação, Psicologia E Interfaces*, 3 (2), 163-183. Issn: 2594-5343. <https://doi.org/10.37444/Issn-2594-5343.V3i2.152>.
- [14]. Lucas, M., & Moreira, A. (2017). *Digcomp – European Framework For Digital Competence*. Aveiro: Universidade De Aveiro – Laboratório De Conteúdos Digitais Do Cidfff.
- [15]. Green, J., Et Al. (2018). Beyond Knowledge: Examining Digital Literacy's Role In The Acquisition Of Understanding In Science. *Computers & Education*, 117, 141-159. Issn: 0360-1315.
- [16]. Carvalho, R. B., Reis, A. M. P., Lariéira, C. L. C., & Pinochet, L. H. C. (2021). Digital Transformation: Challenges In The Formation Of A Construct And Scenarios For A Research Agenda. *Revista De Administração Mackenzie (Ram)*, 22 (6), Eramd210400. Issn: 1678-6971. <https://doi.org/10.1590/1678-6971/Eramd210400>.
- [17]. Subramaniam, M. (2021, February). The 4 Tiers Of Digital Transformation. *Harvard Business Review*. <https://hbr.org/2021/02/The-4-Tiers-Of-Digital-Transformation>.
- [18]. Fernandes, C. M., & Follone, R. A. (2019). Protection Of Personal Data Of Children And Adolescents. *Proceedings Of The Brazilian Congress Of Collective Procedure And Citizenship*, 7, 1120-1139. Issn: 2358-1557.
- [19]. Viana, J. L., Maia, C. M., & Albuquerque, P. G. B. De. (2017). Cyberbullying And The Limits Of Freedom Of Expression. *Revista Brasileira De Políticas Públicas*, 7 (3). Issn: 2236-1677.
- [20]. Pereira, M. Do N. (2015). The Children And Teenagers Overexposure In Social Networks: Needed Caution Using New Technologies To Identity Formation. *Proceedings Of The 3rd International Congress Of Law And Contemporaneity: Media And Rights Of The Networked Society*.
- [21]. Bessant, C. (2014). Data Protection, Safeguarding And The Protection Of Children's Privacy: Exploring Local Authority Guidance On Parental Photography At School Events. *Information & Communications Technology Law*, 23 (3), 256-272. Issn: 1360-0834. <https://doi.org/10.1080/13600834.2014.973178>.
- [22]. Steinberg, S. B. (2017). Sharenting: Children's Privacy In The Age Of Social Media. *Emory Law Journal*, 66, 839-884. Issn: 0094-4076.
- [23]. Belluzzo, R. C. B. (2023). Information Literacy, Media Literacy And Digital Literacy: Reflections From Its Origins To The Main Trends In Economic, Educational, And Cultural Spaces In The Digital Age. *Informatio*, 28 (2). Issn: 2301-1378. <https://doi.org/10.35643/Info.28.2.13>.
- [24]. Sádaba, C., & Salaverría, R. (2023). Combating Disinformation With Media Literacy: Analysis Of Trends In The European Union. *Rlcs, Revista Latina De Comunicación Social*, 81, 17-33. Issn: 1138-5820. <https://doi.org/10.4185/Rlcs-2023-1984>.
- [25]. Borges, G., & Silva, M. B. Da. (Eds.). (2019). *Competências Midiáticas Em Cenários Brasileiros: Interfaces Entre Comunicação, Educação E Artes*. Juiz De Fora: Editora Da Ufjf.
- [26]. Luna, F. D. S., & Bretermiz, V. J. (2021). Digital Transformation In Private Higher Education Institutions In Brazil: A Pre-Coronavirus Baseline. *Revista De Administração Mackenzie*, 22 (6), 1-32. Issn: 1678-6971. <https://doi.org/10.1590/1678-6971/Eramd210127>.
- [27]. Facco, C. P. C. (2022). *Digital Technologies In Educational Practices During The Covid-19 Pandemic*. (Master's Dissertation, Universidade Estadual Paulista Júlio De Mesquita Filho, Faculdade De Ciências E Letras Araraquara).
- [28]. Costa, M. R. M., & Sousa, J. C. (2020). Challenges Of Education And Information And Communication Technologies During The Covid-19 Pandemic: Problematising The Transmission Of Asynchronous Classes On Open Television Channels And The Use Of

- The Internet For Didactic-Pedagogical Purposes. Revista Com Censo: Estudos Educacionais Do Distrito Federal, 7 (3), 55-64. Issn: 2359-2494.
- [29]. Hodges, C., Et Al. (2020, March 27). The Difference Between Emergency Remote Teaching And Online Learning. Education Review. Issn: 1094-5296.