

## Chapter 12

# Addressing Equity and Accessibility in Digital Education

Wisdom Leaf Press

Pages number, 79–84

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<https://journals.icapsr.com/index.php/wlp>

DOI: 10.55938/wlp.v1i5.185



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### Abstract

COVID-19 has highlighted disparities in the availability and quality of digital technology for education, emphasizing the importance of purposeful measures to close the gap. Education is a fundamental right, and digital technologies are required for its implementation. The epidemic has underlined the importance of a comprehensive approach to guaranteeing equal access to education, as well as tackling important equity concerns. This article investigates digital equity and inclusion in education, concentrating on policies and practices in OECD nations. It highlights the need of inclusive digital technology design and execution, as well as capacity building, teacher training, and enough digital tool resources. The article also analyzes the pros and cons of various approaches, as well as research and policy gaps. This study investigates the role of educational institutions in preparing handicapped people for employment, identifying difficulties and possibilities in digital accessibility, and disability in digital transformation. It seeks to give insights on workplace policies and initiatives that enhance accessibility, inclusion, and equity, so contributing to sustainable development goals, decreasing inequality, and fostering inclusive economic growth. People with disabilities working in human resources, businesses and policymakers should all benefit from this information. Digital equity and inclusion are crucial for technology enabled mental health care, as this chapter emphasizes. It looks at how digital applications, mobile devices and the internet have made mental health services more accessible. It also looks at how the covid-19 pandemic has highlighted the need for policy changes to promote the use of digital mental health. Telehealth and remote monitoring are seen by the writers as viable methods to improve mental health treatment delivery and access. Despite its advantages, the extensive use of DMH therapies raises concerns.

### Keywords

Digital Transformation, Emergency Remote Teaching (ERT), Open Educational Resources (OER), Distant Education

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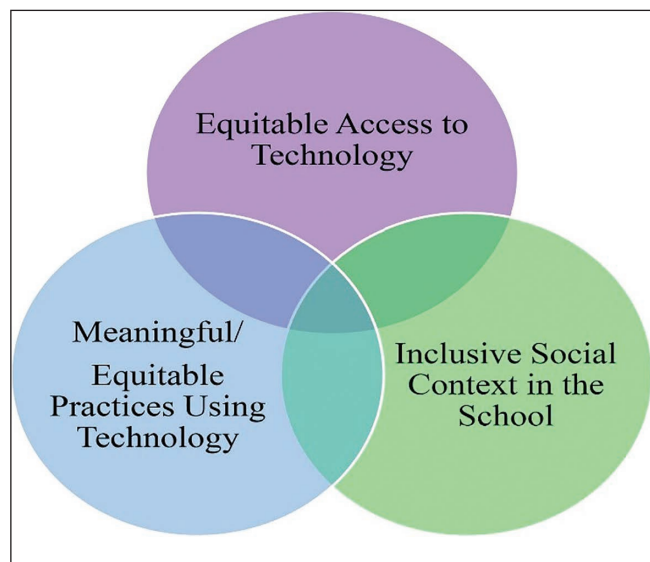
## I. Introduction

Digital education was first seen as a way to guarantee fair access and participation, but COVID-19 exposed its shortcomings. The widespread use of digital technologies during the pandemic, however, raised doubts about this assurance. Given that education is a fundamental right, it is imperative to ensure that digital technologies are accessible to everyone for efficient use <sup>[1]</sup>. In the K-12 sector the shift to online and blended learning has accelerated despite resistance because to the COVID-19 pandemic. The quick integration of technology, rapid growth of online education, and embracing of blended learning have all been favorable effects. However, issues like as accessibility and lack of inclusion have arisen. During the pivot, accessibility was left aside, and many types of online and blended learning established during the pandemic were not completely inclusive <sup>[2]</sup>. As witnessed during the COVID-19 epidemic, digital technology may improve educational accessibility, individualization, and distant learning options, therefore benefiting different student groups. However, persistent digital inequities can impede digital equality and inclusion, particularly for underprivileged children, eroding overall education equity <sup>[3]</sup>. The COVID-19 epidemic has emphasized the increasing use of digitalization in education, underlining the importance of proper technological resources and well-defined teaching methodologies. As educational sectors shifted to digital distance learning, the pandemic highlighted digital inequities and discriminatory practices, impeding the growth of some students, particularly those who were already disadvantaged owing to the forced closure of traditional institutions <sup>[4]</sup>. COVID-19 has resulted in a move towards emergency remote teaching (ERT), which allows students to learn from anywhere at any time. However, this has worsened student digital inequalities and disparities. Governments have sought to solve this by giving students with gadgets, however a lack of access to high-speed internet and adequate technology usage has hampered students' ability to do online work or attend classes, restricting their capacity to share their narratives <sup>[5]</sup>. Universal design technologies foster inclusion and accessibility for all learners, especially those with visual impairments. However, disparities in inclusion, diversity, equity, and accessibility persist in K-12 education. To address these issues, educators and administrators must empower themselves to ensure accessibility in classroom content, incorporate disability solidarity into change management, consider access equity in change measurement outcomes, and investigate how accessible digital tools can increase student engagement and diversify the curriculum <sup>[6]</sup>. The digital gap is the inequality in the availability and utilization of digital technology and resources among different individuals, groups, or communities. It encompasses variations in device availability, internet access, and digital literacy skills. This divide creates major discrepancies in educational opportunities and results, harming both people and communities <sup>[7]</sup>.

The figure 1 demonstrates the three key elements that are necessary to achieve equity and accessibility in digital education. Equitable practices using technology, which encourages the use of digital tools in a way that meets the diverse needs of students, inclusive social context in the school, which creates an environment where all students feel supported regardless of their background and equitable access to technology, which guarantees that all students have access to the devices and internet that they need. These components empower every student equally and guarantees inclusive and productive learning environments <sup>[18]</sup>.

## 2. Addressing Equity and Accessibility in Digital Education

The digital revolution has increased chances for more access to research, boosting education researchers' credibility, fairness, impact, and efficiency. Education researchers may expand accessibility to research



**Fig 1:** Digital Equity and School accessibility

tools and outputs by implementing three open-science practices: open data and code, open materials, and open access. These techniques describe their merits, limits, obstacles, and two contentious concerns [8]. Digital transformation is the process that transforms organizations by harnessing emerging technology to improve service quality and fulfill consumer demands. Individuals with disabilities, however, continue to confront work difficulties as a result of unfavorable attitudes, a lack of accessibility, and discrimination. As a result, there is a need to investigate difficulties and possibilities in learning organizations, digital accessibility, and disabilities in the human resources business [9]. Rapid technological breakthroughs, notably in the development of new educational tools, have resulted in an abundance of new instructional aids in higher education. However, administrators and practitioners must evaluate how these technologies may exclude historically marginalized students. If these systems are developed in situations where teachers and students have hostile interactions, solutions may be created that are essentially exclusionary [10]. Open Educational Resources (OER) are gaining popularity owing to their ability to improve knowledge access and transfer, fostering social justice by assisting students in overcoming educational disparities in access, participation, and formal learning environments [11]. Educators and students use networked devices to share information and track their progress. To promote continual learning, global educational institutions have established online courses and unique material. Despite the epidemic, educational institutions are continuing to digital their teaching and learning methodologies. The growing availability of low-cost and long-lasting online courses in Open distant Learning settings, such as micro-credentials, has pushed for new programs and structures to increase distant education's efficacy [12]. The educational institutions are prioritizing online education; however, this may not enhance students' educational performance since they may lack access to technology and the essential abilities to properly use online learning. The favorable relationship between technological access, competency, and academic outcomes indicates that a more holistic strategy is required [13]. Educational differentiation is currently a standard technique in college education, with the goal of providing students with equitable learning opportunities via instruction. This encompasses the material, instruction, and resources provided by

universities to support individual achievement and build a healthy academic environment. The fundamental objective for these adjustments is to placate and welcome learners from all cultures, since individuals are varied and it is necessary to accommodate that variety <sup>[14]</sup>. Artificial intelligence (AI) is an important tool in education for improving fairness and inclusiveness. It enables tailored learning by assessing a student's learning habits, strengths, and shortcomings. AI-powered systems may personalize instructional content, guaranteeing that all students, regardless of starting place, have equal possibilities to advance and flourish <sup>[15]</sup>. Digital mental health (DMH) is a fast-emerging subject with the potential to promote mental health equality and minimize inequities among underprivileged communities. It can improve the availability, efficacy, and efficiency of mental health care. However, the fast advancement of technology endangers the most disenfranchised, potentially preventing DMH treatments from reaching vulnerable groups and exacerbating healthcare inequities <sup>[16]</sup>.

### 3. Methodology

In digital education, addressing equity and accessibility means creating inclusive learning spaces that accommodate a range of needs and skill levels. Making sure digital platforms are usable by all students, including those with disabilities using tools like screen readers, captioning and alternate input techniques is the first steps in the methodology <sup>[17]</sup>. Different learning styles are accommodated by creating content in a variety of media, including text, audio and video. In order to address affordability, equipment, internet connectivity and digital materials are made available at a reduced or no cost. Students are assisted in navigating online learning through the integration of digital literacy programs. Additionally, procedures and regulations are put in place to support fairness, diversity and inclusion that every student regardless of background has an equal chance to achieve <sup>[18]</sup>.

### 4. Recommendations

Based on our thorough literature review, we propose the following recommendations for future.

- Digitalization presents both opportunity and systematic exclusion, necessitating governmental investment in low-cost broadband, tailored programs, training, and culturally relevant material to improve internet affordability and access for disadvantaged and equity-seeking groups.
- OER improves learning outcomes, lowers education expenses, and raises teaching quality by encouraging resource sharing. It offers free access to high-quality content and resource flexibility, eliminating knowledge gaps and boosting educational quality.
- The training session promises to provide teaching professionals and OER creators with ways for creating equitable resources while taking into account students' different requirements, supporting inclusive and equitable practices and increasing the efficacy of OER.
- Longitudinal studies are essential for assessing equitable gains over time, and comparing treatments across educational contexts can provide culturally responsive solutions. Balancing technology innovation with social justice is critical for fostering an equitable remote education environment.
- According to studies, ethnically relevant training programs, human-centered digital services, community-led digital literacy initiatives, and boosting public knowledge of accessible digital learning resources can improve digital literacy and competence among vulnerable populations.


- According to the surveys, students confront barriers to accessing technology, with a high incidence of smartphone usage, raising concerns about whether this signifies a decrease in technological access.
- The expanding visual nature of web material needs broadband Internet connectivity, since online courses employ a variety of media such as streaming video, interactive content, and video conferencing, requiring newer equipment, updated software, and fast internet access.
- Underprivileged students, particularly those in online environments, may struggle with Technological Efficacy qualities, affecting confidence, self-belief, and engagement. Faculty should play a stronger role in inspiring and engaging students in order to assure their success and foster a supportive online community.

## Conclusion

The digital gap refers to differences in ICT accessibility and usage caused by socioeconomic and cultural variables. It considers diversity in people's needs, viewpoints, capacities, and skill levels. Educational institutions may provide an egalitarian atmosphere in which all students have equal access to excellent resources. The challenge requires multi-level cooperation and a deep understanding of the context. To evaluate the dynamics of developing digital injustice and address the issue of digital equity, it is essential to comprehend intersectional factors such as age, gender, disability, race ethnicity, indigenous identity and immigration status. In order to attain equity, the study emphasizes the necessity of integrity OER into the classroom. By employing student centered methodologies, effective use of OER can provide equal learning opportunities, which could enhance the quality of instruction. Fairness and inclusiveness in distance learning can be enhanced by government initiatives and universal design principles, the study found. But it also emphasizes how important it is to consider cultural difference and the transformative power of collaboration between authorities, academic institutions and community partners. As remote learning develops, new challenges and solutions can surface in this continuing study. Furthermore, there is concern about the potential for prejudice in publication. In order to enhance learning, the essay addresses the advantages and disadvantages of implementing AR and VR in ODL. Customized, adaptable and immersive learning in a mixed environment is made possible by these immersive technologies. It emphasizes how crucial it is to comprehend how educators feel about inclusion and equality in the classroom. According to the majority of educators, VR and AR can solve learning loss, increase student engagement and advancement equity and inclusion.

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