

REMOTE SCHOOLING AND DIGITAL DIVIDE BEING THE KEY FACTORS FOR EDUCATIONAL INEQUALITIES IN UNDERPRIVILEGED COMMUNITIES

Abdul Aziz*

Faculty of Social Sciences, University of Sargodha, Pakistan.

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ABSTRACT

The sudden shift to remote learning for K–12 schools during COVID-19 significantly affected the educational outcomes of disadvantaged adolescents and exacerbated the existing digital divide. This article explores research on how the pandemic impacted the educational attainment of these youth, focusing on the challenges posed by remote learning and the digital divide. We discuss the effects of the digital divide on student learning during the pandemic, examine its impact on the delivery of special education services, and provide an intersectional perspective on the relationship between the pandemic and remote learning. Additionally, we review literature on the widening achievement gap in the context of COVID-19.

Keywords: Remote schooling, Digital divide, Educational inequity, Underprivileged communities

*Corresponding Author. E-mail: leostar2007@gmail.com

INTRODUCTION

People and families around the world faced unimaginable hardship due to the COVID-19 pandemic, which dramatically changed their lives. Mandated lockdowns led to an abrupt shift from in-person classes to fully virtual instruction, and schools were not exempt from these changes. While transitioning to online education seemed logical in our technological age, it exacerbated existing racial, social, and educational disparities. The digital divide highlighted unequal access to resources, significantly impacting students' academic performance during the pandemic. This evaluation focuses on the digital divide—specifically, unequal access to

technology and the internet—and the resulting disparities in remote learning, examining the educational effects of COVID-19 on K–12 students.

ECONOMIC CONSIDERATIONS

To understand how the COVID-19 pandemic has affected education through remote learning and the digital divide, it's essential to adopt an intersectional perspective. Young people in both rural and urban areas, particularly those at the intersection of race (i.e., racially marginalized) and class (i.e., working-class/economically disadvantaged), were significantly impacted by the shift to remote learning. However, few studies

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consider these overlapping identities when analyzing the pandemic's impact on education. Instead, most research focuses on the relationship between COVID-19, educational outcomes, and economic disparities [1].

Access to economic resources played a crucial role in shaping the educational experience for young people and their families during the early stages of the pandemic. For example, many upper-middle-class parents were able to work from home, providing them with more time to supervise and support their children's education. Conversely, a significant number of working-class parents, classified as "essential workers," continued to work outside the home. As a result, teenagers from working-class families often had to care for younger siblings while managing their own education, which typically required less supervision and structure [2].

Homeschooling presented several challenges, even for working-class or low-income parents who could stay at home with their children. Key difficulties included managing multiple children or responsibilities, lacking expertise in certain subjects, and not having the necessary teaching credentials. Furthermore, parents from low-income families faced greater obstacles in finding educational resources for their children compared to those from higher-income households [3-5]. Additionally, while middle-class teenagers often had larger homes or more quiet spaces within their families for learning, youth from working-class homes struggled to share learning environments with siblings who were also engaged in remote learning [6].

It's crucial to recognize that class and race are interconnected; there is no clear distinction in racial wealth disparities, especially given the historical economic discrimination against people of color. Recent data show that the economic gap between White individuals and

racially minority groups in the U.S. has remained stable, with Black and Latino families experiencing the most significant impacts [7]. As a result, Black and Latino communities faced some of the harshest effects of the COVID-19 pandemic [8-10]. Similarly, Black and Latino children were disproportionately affected by the pandemic's impact on education. In addition to the challenges posed by racial wealth disparities during remote learning, many young people from low socioeconomic and racial backgrounds encountered the digital divide as a significant barrier to effective distance education [11].

DIGITAL DIVIDE

The COVID-19 outbreak highlighted an ongoing issue of unequal access to technology, known as the "digital divide." This divide has existed since the inception of the internet and disproportionately affects individuals with multiple intersecting identities.

In 2018, 92% of households in the U.S. owned at least one computer, and 85% had an internet subscription [12]. However, the lowest rates of computer ownership and internet access were among Black individuals and families with at least one member with a disability. Furthermore, the quality and source of access are crucial factors in the digital divide, which encompasses more than just ownership of devices and subscriptions. For instance, young people from low-income families were less likely to have access to high-quality internet in their communities [13]. Many faced limited device access, often sharing computers with family members [14], and lacked internet access beyond their cell phones before the pandemic. When the COVID-19 pandemic shifted online learning from a supplementary tool to the primary method of instruction, it intensified the existing digital divide, which had already manifested in unequal access to online resources that could enhance students' in-

person education.

At the onset of the pandemic, educational authorities struggled to provide technology to children from disadvantaged backgrounds [15]. Research indicated that only two-thirds of children in American households earning under \$25,000 had access to computers and the internet for distance learning. Some low-income students faced complete school closures due to inadequate support for the transition to remote learning, while others experienced a mix of online instruction and paper packets [16,17]. This situation led to confusion about where students should focus their efforts and how to complete and submit assignments. Additionally, supply shortages and political challenges hindered access to technology for remote learning beyond the 2020–2021 academic year.

Before the pandemic, disparities in computer and internet access had already exacerbated the digital divide, resulting in unequal technology use and varied levels of technological literacy among students [18,19]. This gap likely hindered students' ability to engage with online learning platforms, forcing them to divide their attention between learning how to use the platform and understanding the content being taught. Students who had access to computers and the internet at home were more likely to utilize these resources [20] and develop the digital skills [21] necessary for a smooth transition to online learning and remote education.

Teachers have expressed frustration over their inability to communicate with students online about late assignments due to limited internet access. This has resulted in documented negative impacts on student engagement during the COVID-19 pandemic, highlighting the effects of the digital divide. Additionally, teachers have struggled to build rapport with students affected by this divide, which may adversely affect their academic persistence [22].

Consequently, students from underprivileged backgrounds spent time learning digital skills instead of focusing on their academic work, further limiting their access to instructors.

The digital divide significantly affected the education of students with disabilities during the pandemic and the transition to remote learning. In 2020, approximately 15% of students were classified as disabled [23]. The Individuals with Disabilities Education Act mandates that K–12 schools implement Individualized Education Plans (IEPs) to provide specialized support for these students. Many students with disabilities rely on special education services outlined in their IEPs, which include specific interventions, accommodations, and other types of support designed to help them achieve their goals. However, the lack of clear policies regarding IEP implementation in virtual settings [24] and the abrupt shift to remote learning during the COVID-19 pandemic presented unique challenges for educators responsible for delivering these services [25,26].

Recent research indicates that several barriers prevented students eligible for special education services from receiving the support outlined in their IEPs. For instance, children with emotional and/or behavioral disorders are more likely to face suspension, expulsion, and arrest compared to their peers with other disabilities and those in general education, making them particularly vulnerable [27]. One study found that during the pandemic, essential strategies and interventions were often lacking beyond basic check-ins focused on social, emotional, and behavioral well-being [28]. The abrupt cessation of services may have hindered students' ability to develop coping mechanisms and limited their access to safe spaces for emotional expression. The role of school personnel is vital for the academic and personal development of students with disabilities.

Furthermore, students who are deaf or hard of hearing, blind or visually impaired, and those

receiving relevant services on their IEPs (e.g., various therapies) may require additional support from itinerant or part-time service providers. However, these students struggled to obtain necessary services due to inadequate or nonexistent technology, such as tools for teaching Braille. Meanwhile, service providers faced challenges due to the rapid transition to virtual service delivery. This lack of access to essential supports likely hindered students' ability to keep up with instruction, negatively impacting their academic performance.

REMOTE LEARNING

The abrupt transition to remote learning during the COVID-19 pandemic had significant educational repercussions, exacerbating the existing digital divide. However, research on the pandemic's impact on education is still in its early stages, both in the United States and globally among K–12 students. To fully understand the educational effects of COVID-19 on children, researchers must consider not only academic achievement but also related experiences and behaviors, such as school engagement and motivation, which can indirectly influence success. Notably, there is a negative correlation between students' academic progress and the time spent learning online. Interestingly, students who attended classes entirely online typically did so for longer periods, indicating that increased virtual attendance did not lead to higher academic achievement. This finding aligns with evidence that many students learned more effectively in in-person settings than in remote ones. This is particularly relevant given that students from racially marginalized backgrounds were more likely to engage in prolonged online learning compared to their white peers.

A 2020 forecast predicted that U.S. students would achieve only 37% to 50% of the typical learning gains in mathematics and 63% to 68% of the average gains in reading

during the pandemic. Recent studies have confirmed this prediction, showing that academic progress after COVID-19 was significantly lower than in previous years, with math revealing greater deficiencies than reading. Research on learning loss among elementary students indicated that the extent of learning loss increased with grade level, with fourth and fifth graders experiencing the most significant setbacks. In contrast, a meta-analysis of global studies found that older students, particularly those in high school, tended to perform better than younger students, suggesting that advanced elementary years were particularly vulnerable to learning loss during the pandemic. Importantly, students who faced educational challenges during remote learning continued to struggle upon returning to in-person schooling, indicating that the educational consequences of the pandemic may extend beyond the resumption of traditional classes [29].

Several factors have created significant obstacles that continue to impact K–12 students' academic performance. For example, teachers encountered considerable difficulties and pressures due to the shift to remote learning, which directly affected students' academic outcomes. Although many teachers had access to technology, they often lacked the necessary pedagogical support and resources for effective online instruction, as well as training on how to engage with students in a digital format. Additionally, some educators felt that parents were not actively involved or supportive, which was crucial given their limited ability to assist students. Many teachers spent substantial time troubleshooting technology issues with their students while navigating the digital landscape themselves.

Due to technological difficulties and uncertainty about appropriate workloads during the transition to remote learning, some teachers chose to limit the amount of new

information introduced and focus instead on ensuring mastery of previously covered material. This decision resulted in increased stress and a heavier workload for teachers, contributing to issues of burnout and turnover. Overall, the challenges instructors faced in adapting to virtual instruction hindered their ability to positively impact students' academic performance during COVID-19, potentially affecting student outcomes in the future.

Students also experienced unique challenges during the shift to remote learning that significantly influenced their educational results. In addition to technical issues, many students identified communication with teachers as a major barrier, indicating that support for navigating the digital learning environment varied widely among educators. Furthermore, despite teachers' efforts to reduce assignments, many students found the increased workload to be overwhelming. These challenges contributed to a decline in motivation for school. While research on students' perspectives during the pandemic is limited, existing studies underscore the specific barriers that could affect young people's academic outcomes.

DIFFERENCES IN ACHIEVEMENT

Persistent racial, ethnic, and economic disparities in academic achievement among students in the US reflect deep-rooted systemic inequities that result in unequal access to educational resources and opportunities. The extent to which the COVID-19 pandemic has worsened the achievement gap, however, remains uncertain. The disparities highlighted by the digital divide and the shift to remote learning suggest that the pandemic has indeed widened this gap [30].

Early studies conducted during the epidemic, which had small sample sizes and relied on qualitative assessments, raised concerns about the disproportionate impact on minority children's academic performance.

New data from larger datasets indicates that the pandemic was associated with significant learning loss, including historically high declines in reading and math proficiency, particularly among students from underrepresented groups. The declines in standardized test scores were especially pronounced among students of color, lower-performing students, and those from low-income families [31].

Data from Spring 2019 to Spring 2022 show that Hispanic/Latino, Black, and American Indian/Alaska Native students experienced greater declines in reading and math achievement compared to their White and Asian American peers. Estimates suggest that it may take these students anywhere from one to over five years to close the achievement gap, despite a gradual recovery from the learning loss caused by the pandemic. Students in high-poverty schools face an even wider achievement gap and are likely to take longer to recover, as they experienced greater declines and typically have less access to high-quality academic resources.

CONCLUSION

Understanding the effects of rapid changes in educational instruction can take years. Therefore, it is crucial for researchers to examine educational outcomes in the context of the digital divide. During the transition to remote learning, students encountered specific challenges and experiences that significantly impacted their academic performance. Additionally, the racial wealth gap further affected remote learning during the COVID-19 pandemic, as many young people from low socioeconomic and racial backgrounds faced the digital divide as a barrier to effective distance education.

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