

## **The implications of the digital divide on online learning among university students amidst the covid-19 pandemic: A systematic review**

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The COVID-19 pandemic caused a rapid transformation in higher education, forcing the adoption of online learning methods. However, this transformation has shown a significant disparity in the availability of technology, internet connection, and digital literacy, leading to an increase in the digital divide among university students. The objective of this systematic review was to examine the challenges associated with the digital divide within the realm of online education, along with the basic causes that contribute to this inequality. The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA – identification, screening, eligibility and included) method was used to retrieve articles. A systematic search was conducted using the keywords "digital divide," "COVID-19," "online learning," and "university students" in the Scopus and Web of Science databases. A total of 190 articles were initially extracted based on specific keywords. However, after applying inclusion criteria, the number of papers analyzed was reduced to 29. A qualitative analysis was conducted using thematic analysis with the help of NVivo to identify themes pertaining to the difficulties and their causes encountered by students in their online learning process during the COVID-19 pandemic, particularly as a result of the digital divide. Previous studies mostly focused on first (digital access divide) and second level (digital capability divide) digital divide rather than third level (digital outcome divide). First level divide was a major challenge such as lack of digital devices (computers, laptops, smartphones and relevant software) and poor internet connectivity rather than second level which encompasses low computer skills and technology literacy in the online learning. The key factors contributing to these challenges were financial limitations, geographical location, and technological infrastructure deficiencies. Students coming from disadvantaged socio-economic backgrounds and residing in rural and remote regions experience a disproportionate impact on their studies and academic success due to first level digital divide. Addressing the challenges caused by the digital divide requires the implementation of an integrated strategy encompassing governmental policies, educational institutions, and community initiatives. This approach aims to ensure that all students have equitable opportunities for success within digital learning environments, without any individuals being left behind.

**Keywords:** *digital divide, Covid-19 pandemic, online learning, higher education, university students*