

Artificial Intelligence and the Expanding Digital Divide

Nadia Rapheal, E. Rebecca Caldwell

Nrapheal125@rams.wssu.edu, caldwelr@wssu.edu

Winston-Salem State University

Winston-Salem, North Carolina

Abstract

The digital divide has historically separated individuals with reliable access to technology from those without it. As Artificial Intelligence (AI) becomes increasingly integrated into education, healthcare, business, cybersecurity, and workforce development, this divide is expanding into what can be described as an “AI divide.” Individuals in lower socioeconomic communities often lack the technological infrastructure, high-speed broadband access, digital literacy skills, and institutional support necessary to effectively utilize AI tools. In contrast, higher-income communities benefit from stronger internet connectivity, updated hardware, and educational programs that introduce students to emerging technologies.

AI systems depend on fast data processing, cloud computing resources, and stable broadband connections to function efficiently. However, high-speed internet services are disproportionately available in urban and suburban areas, while many rural and underserved communities experience slower and less reliable connectivity. This infrastructure gap directly limits access to AI-powered applications used for learning, job training, and economic advancement.

Educational disparities further intensify the problem. Underserved schools often lack funding for advanced computer science courses, AI literacy programs, and updated technological equipment. Without early exposure to AI concepts and skills, students may be unprepared for a workforce increasingly shaped by automation and machine learning. As AI expands across industries and begins to automate certain job functions, individuals without access or training risk long-term economic disadvantage.

This study examines how infrastructure inequality, limited AI education, and insufficient institutional support may widen socioeconomic gaps in the era of artificial intelligence. It also explores policy and educational strategies designed to promote equitable access to AI technologies and workforce opportunities.