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**DIGITAL TRANSFORMATION FOR INCLUSIVE LEARNING AND COMMUNITY
DEVELOPMENT**

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Abstract

In our world today, digital transformation is now a powerful tool for promoting inclusive education and long-term community development. This paper highlighted ways digital technologies enhance inclusive learning and community development through technologies like e-learning platforms, mobile learning systems, assistive technology, Open Educational Resources (OER), and community-based digital centers. It further elucidated the key roles digital transformation plays in making learning inclusive, as well as enhancing community capacity, mobilization, economic empowerment, social inclusion and engagement among others. The paper also outlined some of the challenges of digital transformation to include digital divide, low digital literacy, inadequate infrastructure, funding limitations, and resistance to technological change. Based on the discuss, the paper concluded that digital transformation remains an essential catalyst for community development and inclusive education. Hence the paper suggested that sustainable investment in digital infrastructures, inclusive policies, training in digital literacy, and community-driven initiatives that encourage holistic utilisation of digital transformation tools are necessary to ensure inclusivity and sustainability of learning and development.

Keywords: Digital Transformation, Inclusive Learning, Community, Development and Digital Literacy.

Introduction

The world saw a digital transition from analogue to digital information (a process known as "digitisation") with the introduction of the internet at the end of the 20th century. This was followed by the incorporation of information technology into all facets of business processes. This rapid digital revolution in our world today is being driven by the widespread use of the Internet and the creation of new technologies like generative AI, which are drastically altering labour and productivity as well as many aspects of society, including education and community development. According to recent studies, digital revolution is increasingly driving changes in educational institutions and societal structures, particularly in the transition to knowledge-based economies (Farias-Gaytan et al., 2023).

In community contexts, "digital transformation" refers to the use of ICT tools to enhance mobilisation, communication, information access, and socioeconomic development. It enables communities to access public services, participate in digital economy, and improve their overall quality of life. Due to the confluence of social, mobile, cloud, and smart technologies as well as the growing need for automation and integration, digital tools are transforming communities. At the same time, inclusive education which seeks to ensure that everyone has equal access to a top-notch education regardless of socioeconomic status, gender, location, or disability is becoming increasingly crucial and possible with digital technologies. The way we interact and learn in our communities is being progressively shaped by access to information, particularly by the digital transformation (digital solutions being embedded in systems). The advancements in the digital world have an impact on the field of education and its context (Turner-Cmuchal, & Weber, 2024). In developing countries such as Nigeria, digital technologies can be leveraged as tools to tackle educational inequalities and foster community development efforts. It is the utilisation of modern technologies such as virtual reality (VR), e-learning platforms, artificial intelligence (AI) and mobile learning systems as a means of teaching and learning to develop the individual and his/her community.

Digitalisation is essential for community development progress as it improves access to social services, economic opportunities, and education. It provides access to digital learning resources, skill-building programs and income-generating activities to residents of disadvantaged communities. For this reason, study by Ramírez-Correa et al. (2025) found that by enhancing learning outcomes and encouraging social inclusion and economic empowerment, digital transformation promotes community development processes. Thru digital literacy initiatives and technology-enabled education, communities build more capability, reduce poverty, and promote sustainable development.

Conceptual Overview

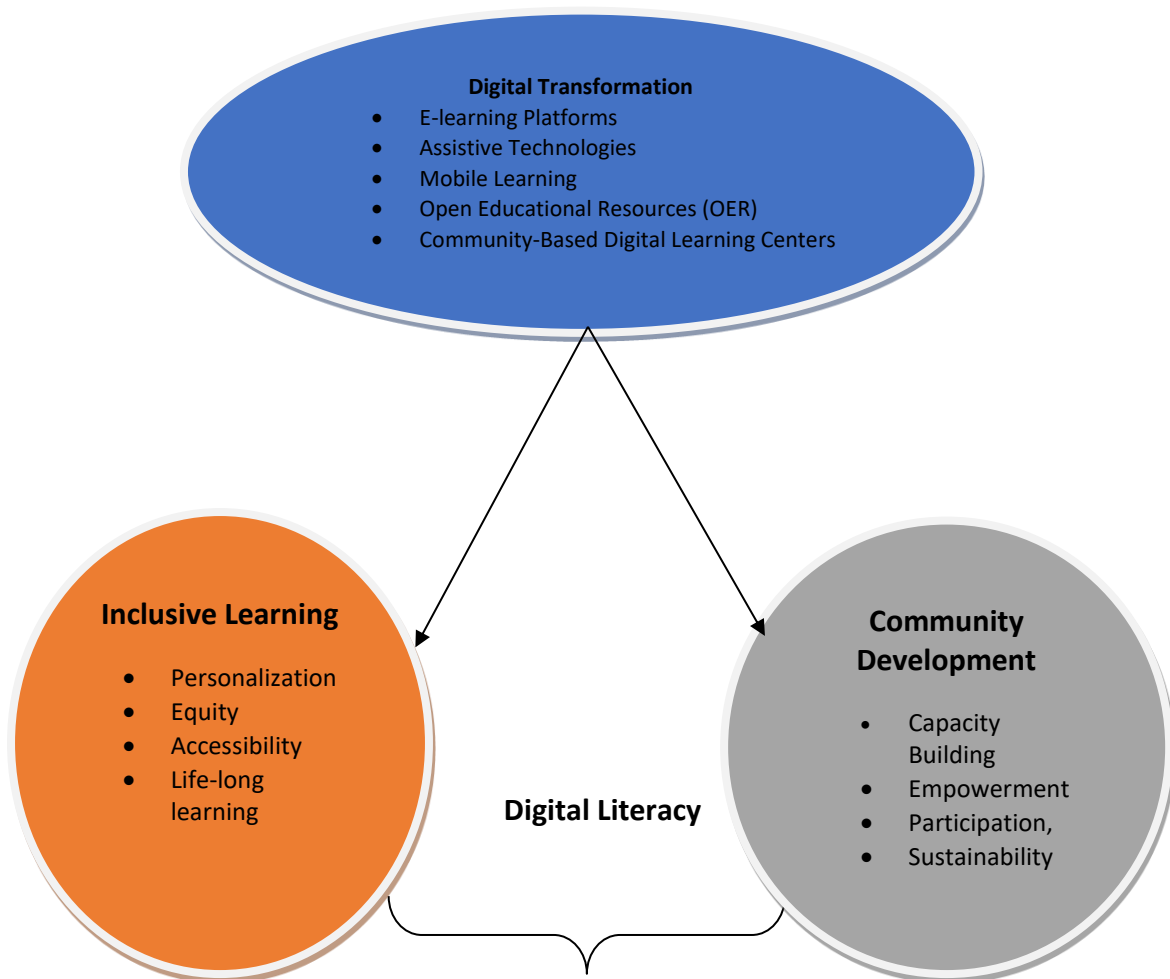
Digital Transformation: This has been defined as integrating digital technology into every aspect of human endeavour. Digital transformation has led to new approaches to teaching, learning, communication, and social engagement. For example, workers must develop human-centered and digital skills due to automation and digital technologies, which impacts organisational culture, procedures, and strategy (Fischer et al., 2020). Therefore, in order to guarantee successful implementation, the organization must make the necessary adjustments. Higher education is among the business areas that are impacted. "Digital transformation" refers to the integration and application of digital technology to drastically change systems, services, and procedures in order to increase productivity, innovation, and value creation. It involves using technology such as e-learning platforms, artificial intelligence (AI), the Internet of Things (IoT), and information and communication technologies (ICTs) to improve organisational and social functions. In order to achieve better outcomes, digital transformation is a socio-technical process that alters how people, data, and systems interact (Ciancarini et al., 2024).

Inclusive Learning: "Inclusive learning" is an educational approach that allows all students, including those with disabilities or learning challenges, to participate completely in educational activities (Okon & Essien, 2025). It ensures that every student, regardless of gender,

socioeconomic position, ethnicity, language, handicap, religion, or learning capacity, has an equal chance to participate meaningfully in the teaching and learning process. It promotes the idea that all students may benefit from a diverse learning environment that provides the support and adjustments needed for success. Inclusive learning promotes learner-centred teaching techniques that recognise individual differences in learning styles, aptitudes, and experiences. This change is in line with the concept of Education 4.0, which emphasises flexibility, learner-centred, and technology-driven education (Asatovna, 2025). In a similar vein, Kaimara et al. (2020) noted that scholars emphasise that in order to accommodate students with diverse learning styles, inclusive education necessitates modifying curricula, instructional strategies, and institutional frameworks.

Additionally, digital technology like assistive aids and adaptive learning systems are very helpful in inclusive learning environments (Said et al., 2025). It provides marginalised and disadvantaged kids with access to a top-notch education while promoting equality and educational justice in communities (Ainscow, 2020).

Community Development: Community development is the process of enabling individuals and organisations to improve their socioeconomic situation and overall quality of life. It emphasises empowerment, engagement, and sustainability as core principles. Community development is the process of cooperating to improve the social, political, economic, cultural, infrastructural, and peaceful well-being of the community's members (Orlu and Didi, 2026). It is a process whereby Community members must actively participate in decision-making processes, build capacity, and mobilise resources in order to take collective actions and generate solutions to common problems. The study by Sundeep et al. (2025) indicates that digital transformation is essential to the development of any given neighbourhood because it increases access to information, fosters fair participation in governance and development processes, and enhances service delivery.

Digital Transformation tools, Inclusive Learning and Community Development

E-learning Platforms and Virtual Classrooms: E-learning platforms and virtual classrooms have transformed education by enabling students to access course materials, participate in discussions, and interact with instructors from anywhere in the globe. Platforms that promote flexibility and diversity in education, such as Moodle, Google Classroom, Microsoft Teams, and Zoom, offer both synchronous and asynchronous learning. These technologies were particularly important after the COVID-19 pandemic, as schools and educational institutions used digital learning environments to ensure continuity of instruction (Zhao & Watterston, 2021). Furthermore, virtual classrooms provide collaborative learning, multimedia instruction, and real-time assessment, all of which boost student involvement and engagement (Said et al., 2025). Additionally, inclusive e-learning platforms are including accessible features like screen readers, subtitles, and multilingual support for students with special needs.

Mobile Learning Technologies: Mobile learning technology refers to the use of smartphones, tablets, and other portable digital devices to facilitate learning at any time and from any

location. Mobile learning increases educational access in remote and impoverished areas where regular educational facilities may not be enough. Thru educational applications, SMS-based learning, podcasts, and mobile-friendly learning management systems, students may readily and affordably access digital material. Mobile technology have boosted participation in digital education in many African communities by bridging the digital divide and creating opportunities for lifelong learning. Additionally, by allowing students to study at their own pace thru customised learning experiences, mobile learning fosters inclusion and flexibility in education (Clavijo et al., 2026). They said that technology might improve the sustainability and inclusivity of learning environments.

Assistive Technologies for Learners with Disabilities: Assistive technology refers to digital technologies designed specifically to help children with special education needs and disabilities. These technologies include, but are not limited to, screen readers, voice recognition software, braille displays, captioning systems, adapted keyboards, and hearing aids. These services improve accessibility, engagement, and academic success for learners with visual, aural, physical, or cognitive impairments. Assistive technologies are rapidly integrating artificial intelligence and adaptive learning systems to tailor educational experiences for kids with disabilities (Okon & Essien, 2025).

Open Educational Resources (OER): These are free digital teaching and learning materials that may be shared, altered, and used again as many times as possible. Examples include instructional software, digital libraries, online lecture videos, open textbooks, and course materials with open licenses. Open educational resources (OER) promote inclusive learning by reducing the cost of educational resources and expanding access to high-quality learning materials for the less privileged students. Adoption of OER encourages equitable learning opportunities, especially in developing countries like ours where access to educational materials are unequal or limited. This form of digital transformation also encourages communities, educators, and students to collaborate on knowledge acquisition and continued learning as it makes educational resources more widely available and accessible on a global scale (Alvarez-Icaza et al., 2026).

Community-Based Digital Learning Centers: These are localised hubs (community-based) that have computers, internet access, solar power systems, and digital learning resources to support inclusive education and community development. These resources are particularly useful in rural and impoverished places with little formal digital infrastructure. In order to create an information-literate society and eventually keep individuals from falling prey to cybercrime, community-based digital learning centers play a crucial role in educating the populace (Sri et al., 2021). CBDLC is part of an institution that arranges non-formal and informal educational activities. It hopes to socialise human resource development initiatives by offering lifelong learning to everybody, irrespective of social class. It also supports the education movement for all by concentrating on literacy and sustainable education. Community digital centers provide opportunities for digital literacy training, entrepreneurial development, online learning, and vocational education.

Digital Transformation and Inclusive Learning

Digital transformation plays the following under listed roles in enhancing inclusivity in learning:

- **Facilitating Personalized Learning:** Digital transformation encourages customised learning by enabling the adaptation of instructional methodologies and educational resources to each learner's needs, abilities, and interests. Using artificial intelligence, adaptive learning technology, and data analytics, teachers may design individualised learning experiences depending on students' performance and learning preferences. Personalised learning allows students to progress at their own pace while receiving targeted support in areas where they have difficulty. This approach is particularly beneficial for inclusive learning as it promotes equitable educational outcomes and takes into account a variety of learning capacities. Adaptive learning technology also helps students with disabilities by providing individualised and easily accessible instructional resources. This is why Holmes and Tuomi (2022) pointed that individualised digital learning environments improve learner autonomy, academic achievement, and inclusion by effectively addressing individual learning variances.
- **Enhancing Access to Education for Marginalized Groups:** The digital revolution has significantly improved access to education for poor and disadvantaged groups, including rural students, women, individuals with disabilities, low-income groups, and displaced people. This is made possible by digital technologies like e-learning platforms, mobile applications, virtual classrooms, and online educational resources, students who did not previously have access to formal education can now participate in learning activities remotely. The main goal is to provide an educational environment that better supports and accommodates a range of user demands (Oyekunle et al., 2024). By removing traditional barriers associated with cost, physical infrastructure, and distance, digital tools support equity and inclusivity in education.
- **Bridging Geographical Barriers:** One of the primary contributions of digital transformation to inclusive learning is its capacity to transcend geographical borders. Access to high-quality education is limited in many developing countries, especially among rural and isolated communities, due to a lack of schools, a teacher shortage, and poor infrastructure. Digital technologies enable distant students to engage with lecturers and educational resources via mobile networks and the internet. Cloud-based learning systems, video conferencing platforms, and virtual classrooms enable remote teaching and learning regardless of location. This has enhanced educational inclusion by ensuring that pupils in rural communities have access to the same educational opportunities as those in urban regions (Dhawan, 2020).
- **Supporting Lifelong Learning Opportunities:** Digital transformation encourages lifelong learning by providing individuals of all ages with consistent and flexible access to educational materials. Unlike traditional education systems, which are sometimes limited by time and location, digital learning platforms allow people to learn at their own pace throughout their lives. Online courses, webinars, podcasts, digital libraries, and Massive Open Online Courses (MOOCs) have created opportunities for career training, professional development, and self-directed learning.

- **Improving Participation and Engagement:** Digital transformation raises student involvement and engagement through collaborative and interactive learning environments. Multimedia technologies, gamification, discussion boards, virtual reality, simulations, and social learning platforms make learning more engaging and learner-centred. Digital technologies encourage active participation by enabling real-time communication, collaboration, and idea exchange. Interactive learning environments also promote a range of learning methods while increasing student motivation and retention. Technology-supported learning environments improve students' academic engagement and involvement by creating more flexible and responsive learning environments (Bond et al., 2021).

Digital Transformation and Community Development

Digital transformation plays an important role in community development through the following:

- Drives of community capacity expansion and skill development.
- It enables individuals and communities to participate effectively in the digital economy.
- It promotes social participation and involvement by connecting individuals and communities through digital communication platforms and online services.
- It strengthens regional institutions and governance frameworks by improving service delivery, communication, transparency, and administrative efficacy.

Challenges of Digital Transformation for Inclusive Learning and Community Development

Even if the importance of digital transformation is growing, it still faces several challenges as outlined below:

1. Persistent Digital Divide (Access, Affordability, and Connectivity)
2. Low digital literacy among students, teachers, and community members
3. Inadequate technological infrastructure significantly impedes the successful implementation of digital transformation programs in community learning centres and education
4. Inadequate funding
5. Poor policy implementation
6. Resistance to technological change among educators, administrators, students, and communities may also impede the successful use of digital learning technologies.

Suggestions on Way Forward

Ertmer and Ottenbreit-Leftwich (2021) suggested that overcoming resistance to technological change requires institutional support, continuing professional growth, and increasing awareness of the benefits of digital learning. Further, based on the discuss so far, the following suggestions will encourage holistic utilisation of digital tools in learning and community engagement:

1. Investing in digital infrastructure to support effective and fair digital education
2. Training in digital skills and capacity building are essential strategies for enhancing inclusive digital learning.
3. Inclusive education policies must be created and implemented in order to guarantee equitable digital transformation in educational systems.

4. Public-private partnerships (PPPs) are essential for enhancing digital transformation for inclusive learning.
5. Community-driven digital projects are essential for sustainability and local participation in digital transformation initiatives.

Conclusion

From our discussion so far, the fact that digital transformation is now a powerful tool for promoting inclusive education and long-term community development is glaring. Through technologies like e-learning platforms, mobile learning systems, assistive technology, Open Educational Resources (OER), and community-based digital centers, digital transformation has made learning opportunities more accessible to underprivileged and disadvantaged communities. This can promote equitable access to knowledge, develops human potential, raises civic involvement, and aids in socioeconomic empowerment of communities. Hence it remains an essential catalyst for community development and inclusive education. Therefore, sustainable investment in digital infrastructures, inclusive policies, training in digital literacy, and community-driven initiatives that encourage holistic utilisation of these digital tools are necessary to ensure inclusivity and sustainability of learning and development in our communities of today's technological innovation world.

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