

Emerging Technological Trends and Their Contributions to Inclusive and Accessible Education

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Abstract: *The rapid advancement of technology is reshaping global education systems, creating opportunities for inclusivity and accessibility in ways that were previously unattainable. Emerging technological trends, such as artificial intelligence, virtual and augmented reality, adaptive learning platforms, mobile applications, and assistive technologies, are transforming how learners access, engage with, and benefit from educational content. Using data from both secondary and interdisciplinary sources, and adopting the use of the Connectivism Theory, this study revealed that these innovations not only personalize learning experiences but also break down barriers related to geography, disability, language, and socioeconomic status. For instance, AI-driven tools facilitate individualized instruction, while digital learning platforms expand opportunities for remote and underserved communities. More so, the study revealed that assistive technologies empower students with visual, auditory, or cognitive impairments to participate fully in learning environments. It showed that despite these advancements, challenges such as the digital divide, infrastructural gaps, and concerns about data privacy persist. The study established that when strategically integrated with supportive policies and equitable access, these technologies can significantly advance the global agenda for inclusive, equitable, and quality education as envisioned in the United Nations Sustainable Development Goal 4 (SDG 4). The paper recommends the integration of digital learning tools, investment in assistive technologies, capacity building for educators, and affordable infrastructure and policy support etc. It concludes that emerging technological trends have become transformative forces in advancing inclusive and accessible education across the globe.*

Keywords: assistive technology, artificial intelligence, ai-driven tools, digital learning, cognitive impairment

INTRODUCTION

The pursuit of inclusive and accessible education is a cornerstone of equitable societies, aiming to ensure that every learner, regardless of ability, background, or circumstance, has access to meaningful learning opportunities. Historically, educational systems have struggled to accommodate the vast spectrum of human diversity, often leaving students with disabilities, those in remote locations, or those with atypical learning styles behind. However, the dawn of the digital age has ushered in a transformative era. Emerging technological trends are fundamentally reshaping the educational landscape, dismantling long-standing barriers and actively contributing to the creation of learning environments that are genuinely inclusive and accessible for all. One of the most impactful trends is the advancement of Artificial Intelligence (AI) and adaptive learning technologies. AI-powered platforms can analyze individual student performance in real-time, dynamically adjusting the difficulty, pace, and presentation of content to suit each learner's unique needs (Holmes et al., 2021). For a student with dyslexia, this might mean text being automatically converted to an audio format or presented with a specific, easier-to-read font. For a student who needs more challenge, the system can provide advanced materials. This personalization ensures that no student is left bored or overwhelmed, moving the classroom from a one-size-fits-all model to a truly individualized learning journey. Furthermore, AI-driven tools like speech-to-text and real-time translation services are breaking down communication barriers for students with hearing or speech impairments and for those who are non-native speakers.

Another significant trend is the proliferation of immersive technologies, such as Virtual Reality (VR) and Augmented Reality (AR). These tools create rich, experiential learning environments that can be tailored for diverse needs. For students with physical disabilities, VR can offer virtual field trips to the Louvre or the Great Barrier Reef, experiences that might otherwise be inaccessible (Bower & Sturman, 2020). AR can overlay text with images, videos, or 3D models, aiding comprehension for students who struggle with traditional text-based learning, such as those on the autism spectrum or with specific learning difficulties. By providing multiple means of representation and engagement—a core principle of Universal Design for Learning (UDL)—VR and AR make abstract concepts tangible and accessible. The revolution in assistive technology itself is also a critical trend. Modern tools are becoming more sophisticated, integrated, and affordable. Screen readers like JAWS and NVDA have evolved significantly, providing robust access to digital content for the visually impaired. Meanwhile, eye-gazing technology and adaptive controllers for gaming consoles and computers are empowering students with severe physical disabilities to interact with educational software and communicate with peers and teachers (Edyburn, 2021). These technologies are no longer niche; they are becoming mainstream components of accessible digital infrastructure, ensuring that the tools for participation are readily available.

Moreover, the shift towards cloud computing and collaborative platforms like Google Workspace and Microsoft Teams has fostered a more inclusive social learning environment. These platforms

often have built-in accessibility features, such as live captions and automatic alt-text generation for images. They enable seamless collaboration between students with diverse abilities, allowing for shared documents and group projects where each member can contribute according to their strengths and with the support of their preferred assistive technologies. This breaks down the social and logistical isolation that many students with disabilities have historically faced.

Statement of the Problem

Education is universally recognized as a fundamental human right and a cornerstone for sustainable development. However, the global education landscape continues to face significant challenges relating to inclusivity and accessibility. Millions of learners, particularly those in rural communities, persons with disabilities, and individuals from low-income backgrounds, remain excluded from mainstream education due to infrastructural deficits, inadequate teaching resources, high costs, and rigid instructional models. Traditional approaches to teaching and learning often fail to accommodate diverse learning needs and socio-economic disparities, thereby widening the gap between privileged and marginalized groups. In recent years, emerging technological trends such as artificial intelligence, virtual and augmented reality, adaptive learning platforms, mobile applications, cloud computing, and assistive technologies have been touted as potential enablers of inclusive and accessible education. These technologies offer opportunities to personalize learning, remove physical barriers, enhance participation of learners with disabilities, and expand access to quality educational resources beyond geographical limitations. Despite these promises, several challenges undermine their full potential in fostering inclusive education. Issues such as unequal access to digital infrastructure, high costs of deployment, low digital literacy among teachers and learners, cultural resistance to technology adoption, and concerns about data privacy and ethical use continue to impede progress.

Furthermore, while governments and institutions have adopted policies to promote digital education, there is limited empirical evidence on how emerging technological trends concretely contribute to inclusivity and accessibility across different contexts. This raises critical questions: To what extent are these technologies bridging or deepening existing educational inequalities? How are they being adapted to address the specific needs of disadvantaged groups? And what systemic barriers must be overcome to maximize their impact on inclusive education? Therefore, the problem this study seeks to address is the tension between the transformative potential of emerging technological trends and the persistent barriers that hinder their effective integration into inclusive and accessible education. Without a clear understanding of these dynamics, efforts to harness technology for equitable education may fall short of achieving the global commitment to "leave no one behind" in education.

Theoretical Framework

Connectivism Theory

Connectivism, proposed by George Siemens (2005) and further developed by Stephen Downes (2007), is often regarded as a learning theory for the digital age. Unlike traditional theories such as behaviorism, cognitivism, and constructivism, connectivism emphasizes the role of networks, digital tools, and technology in facilitating learning. Siemens argues that knowledge is no longer only stored in human memory but is distributed across networks of people, devices, and information systems. Learning, therefore, is defined as the ability to construct and navigate these networks to access and apply relevant knowledge (Siemens, 2005). Downes (2012) complements this by stressing the importance of autonomy, diversity, openness, and interactivity within digital learning environments. At its core, connectivism proposes that learning is a process of connecting specialized nodes of information, and the capacity to know more is more critical than what is currently known. It recognizes the fluidity of knowledge in the digital era, where information is constantly changing and learners must adapt to new technologies and contexts (Kop & Hill, 2008). Thus, connectivism provides a framework for understanding how modern learners acquire, share, and co-create knowledge through technological platforms and online communities.

Key Emerging Technological Trends Shaping Inclusive and Accessible Education Globally and Within Nigeria

Of the myriad forces reshaping contemporary education, the most transformative are those technologies actively dismantling barriers to learning, fostering unprecedented levels of inclusion and accessibility on a global scale. This paradigm shift moves beyond mere digitization to a fundamental re-engineering of educational experiences, ensuring they are adaptable, personalized, and available to learners of all abilities and backgrounds. While these trends are gaining momentum worldwide, their impact and implementation trajectory offer a unique and telling case study in a nation like Nigeria, where traditional educational challenges intersect with explosive technological adoption. The convergence of Artificial Intelligence (AI), immersive technologies, adaptive learning platforms, mobile-first solutions, and accessible content creation tools is not just enhancing education for students with disabilities but is fundamentally restructuring it to be inherently more equitable for all.

Firstly, Artificial Intelligence (AI) and generative AI are at the forefront of creating dynamic, personalized learning pathways. Globally, AI-powered tools are providing real-time support, such as automatic speech-to-text transcription for deaf or hard-of-hearing students and AI-driven alt-text generation for images, making digital content instantly more accessible (Zhang & Aslan, 2021). For students with learning differences like dyslexia, AI can rephrase complex text into simpler language or provide interactive summaries. In Nigeria, the potential is vast, though the application is nascent. AI-driven chatbots on platforms like WhatsApp, which is ubiquitously used, can offer personalized tutoring and answer questions in local languages, bridging gaps in teacher availability. Projects exploring AI to translate educational materials into Nigeria's three major

languages (Hausa, Igbo, and Yoruba) and numerous minor ones could revolutionize access. However, this relies on overcoming significant hurdles, including the development of robust AI models trained on diverse Nigerian linguistic and contextual data and ensuring affordable, reliable internet access to power these cloud-based solutions (Oyelere et al., 2020).

Secondly, Immersive Technologies, particularly Virtual Reality (VR) and Augmented Reality (AR), are creating experiential learning environments that transcend physical and cognitive limitations. Globally, VR allows students in wheelchair to take virtual field trips to archaeological sites or museums, while AR can overlay interactive, 3D models of complex biological systems in a classroom, benefiting kinesthetic and visual learners (Papanastasiou et al., 2019). These technologies are particularly powerful for teaching empathy and social skills, allowing neurotypical students to experience classroom simulations from the perspective of a peer with autism, for instance. In Nigeria, the high cost of dedicated VR headsets remains a barrier, but the proliferation of smartphones offers a fertile ground for AR applications. Imagine a student in a rural school with limited lab equipment using their phone to project a detailed, interactive 3D model of the human heart onto their desk. This can democratize access to high-quality practical science education, making abstract concepts tangible and accessible regardless of a school's resource level.

Thirdly, Adaptive Learning Platforms and Learning Analytics are moving education from a one-size-fits-all model to a truly customized experience. These platforms use continuous assessment data to adjust the difficulty, pace, and sequence of learning content in real-time, catering to individual student needs (Siemens & Baker, 2012). For a gifted student, the platform can introduce advanced material, while for a student struggling with a core concept, it can provide additional practice and alternative explanations. This is inherently inclusive, as it personalizes the journey for every learner without singling anyone out. In the Nigerian context, such platforms could be instrumental in addressing the wide disparities in prior knowledge among students entering higher education. However, their effectiveness depends on large, high-quality datasets to train their algorithms, which are often scarce. Initiatives to integrate these technologies into Nigeria's educational framework must be coupled with significant investment in digital infrastructure and data collection to avoid creating a new form of digital exclusion based on data poverty.

Fourthly, the Mobile-First and Ubiquitous Learning model acknowledges that for many, a smartphone is the primary, if not sole, gateway to the digital world. Globally, the "anytime, anywhere" nature of mobile learning is crucial for non-traditional students, working learners, and those in remote areas. In Nigeria, this trend is perhaps the most significant driver of inclusive education. With mobile penetration exceeding 80%, education delivered via SMS, lightweight learning apps, and mobile-optimized platforms can reach populations that have never set foot in a university (GSMA, 2023). This approach is critical for reaching out-of-school children, providing literacy and numeracy skills to adult learners, and offering flexible upskilling opportunities for women and girls who may face cultural or logistical barriers to attending physical institutions. The

challenge lies in designing content that is effective on small screens, data-efficient to accommodate limited data plans, and functional even with intermittent connectivity.

More so, Accessible Digital Content and Universal Design for Learning (UDL) principles are ensuring that the very building blocks of digital education are born accessible. UDL is a framework for designing curricula that provide multiple means of engagement, representation, and action and expression, benefiting all learners (CAST, 2018). Globally, this means creating eBooks with text-to-speech functionality, videos with closed captions and transcripts, and documents that are navigable by screen readers. In Nigeria, as institutions and ed-tech startups rush to create digital content, embedding UDL from the outset is critical to prevent the creation of a new digital divide where content is available but inaccessible to students with visual, auditory, or motor impairments. This requires training for content creators, educators, and software developers on accessibility standards, turning what is often an afterthought into a foundational design principle.

Role of Digital Platforms, Assistive Technologies, and Artificial Intelligence in Bridging Educational Gaps

The global educational landscape is characterized by persistent disparities in access, quality, and outcomes, often referred to as the "educational gap." These gaps are exacerbated by factors such as geography, socio-economic status, disability, and a shortage of qualified educators. However, the concurrent evolution of digital platforms, assistive technologies, and artificial intelligence (AI) presents an unprecedented opportunity to bridge these divides. Together, these technologies are democratizing education by personalizing learning, enhancing accessibility, and scaling instructional support, thereby moving towards a more equitable educational paradigm.

Digital platforms form the foundational infrastructure for this transformation. Learning Management Systems (LMS) like Moodle and Canvas, and Massive Open Online Course (MOOC) providers like Coursera and edX, have dismantled geographical barriers, granting anyone with an internet connection access to courses from world-renowned institutions (Kaplan & Haenlein, 2016). This is particularly transformative for learners in remote or underserved regions who previously had limited educational opportunities. Beyond content delivery, these platforms facilitate collaborative learning through forums and video conferencing, creating virtual classrooms that foster a sense of community and peer-to-peer support. They also provide a rich data stream on student engagement and performance, which, while powerful on its own, becomes truly revolutionary when leveraged by AI. The scalability of digital platforms means that high-quality educational resources can be distributed to millions at a marginal cost, addressing the issue of resource scarcity that plagues many public education systems (Bozkurt, 2019).

Building upon this digital foundation, assistive technologies are specifically engineered to ensure that educational gaps related to disabilities are narrowed. Tools such as screen readers (e.g., JAWS, NVDA), speech-to-text software, and augmentative and alternative communication (AAC) devices empower students with visual, hearing, physical, or cognitive impairments to access the curriculum and demonstrate their knowledge. For instance, a student with dyslexia can use text-

to-speech software to comprehend complex texts, while a student with a motor impairment can dictate their essays. Furthermore, mainstream technologies often have built-in accessibility features, such as closed captioning on videos or magnification tools, which benefit a wide range of learners, including those without formal disabilities. By designing for inclusivity from the outset, these technologies ensure that the digital educational revolution does not leave behind the estimated 240 million children with disabilities worldwide (UNICEF, 2021), thereby transforming a potential gap into an opportunity for participation.

The most dynamic and adaptive layer in this ecosystem is Artificial Intelligence, which acts as a force multiplier for both digital platforms and assistive tools. AI-driven adaptive learning systems can analyze a student's interactions in real-time, identifying knowledge gaps and tailoring the subsequent content to their precise learning level and pace. Platforms like Knewton or DreamBox provide a personalized learning path for each student, effectively creating a "personal tutor" for every learner, a level of individualization impossible to achieve in a traditional classroom of 30 students (Baker, 2016). For students with special needs, AI is supercharging assistive technology; it can power real-time transcription services for the deaf and hard of hearing, describe visual content for the blind with unprecedented accuracy, and even develop AI-powered social robots to support children with autism spectrum disorder. Moreover, AI can alleviate the burden on educators by automating administrative tasks like grading and providing predictive analytics to flag at-risk students early, allowing for timely intervention. This enables teachers to focus on higher-order tasks like mentorship and fostering critical thinking, thereby enhancing the overall quality of education (Selwyn, 2019).

Challenges and Barriers Hindering the Adoption of Emerging Technologies in Promoting Inclusive Education

The integration of emerging technologies like artificial intelligence (AI), virtual reality (VR), and adaptive learning platforms holds immense promise for creating more inclusive educational environments that cater to diverse learning needs, abilities, and backgrounds. However, the widespread adoption of these tools is significantly hindered by a complex interplay of infrastructural, economic, pedagogical, and ethical barriers. A primary and pervasive challenge is the **digital divide and infrastructural inequity**. The foundational requirement for technology-based inclusion is reliable, high-speed internet access and adequate hardware, which remains a stark global and even domestic inequality. Students in low-income, rural, or marginalized communities often lack both the devices and the connectivity necessary to participate in digitally-enhanced learning (UNESCO, 2023). This creates a "double exclusion," where the very tools intended to foster inclusion instead exacerbate existing disparities, leaving the most vulnerable learners further behind. Without addressing this foundational layer of access, other efforts are rendered moot.

Closely linked to infrastructure is the **significant financial cost**. Emerging technologies are often expensive to develop, procure, and implement. School systems, particularly those already

underfunded, face difficult budgetary choices between investing in new technologies and covering essential costs like teacher salaries, facility maintenance, and basic educational materials (Ertmer & Ottenbreit-Leftwich, 2013). Beyond initial purchase, there are substantial ongoing expenses for software licenses, technical support, and, crucially, the continual professional development needed for educators to use these tools effectively. This economic barrier prevents many institutions from even piloting potentially transformative technologies, creating a two-tiered system where well-resourced schools advance while others stagnate.

Even when technology is available, its effective implementation is often stymied by a **lack of teacher preparedness and pedagogical resistance**. Educators are the crucial intermediaries between technology and student learning, yet many report feeling inadequately trained to integrate complex new tools into their practice. Professional development is frequently limited to one-off workshops on technical functions, failing to address the more profound pedagogical shift required to use technology in a way that genuinely supports differentiated instruction and universal design for learning (Basham et al., 2020). This can lead to fear, skepticism, or "technology integration for its own sake," where tools are used in ways that do not align with inclusive pedagogical goals, ultimately wasting resources and undermining teacher confidence.

Furthermore, the design and implementation of these technologies present profound **ethical and social challenges**. AI-driven algorithms, used for everything from automated essay scoring to identifying students for intervention, can perpetuate and even amplify existing societal biases if they are trained on non-representative data (Baker & Hawn, 2021). This risks creating a new form of digital discrimination against students from minority ethnic or socioeconomic groups. Issues of data privacy and student surveillance are also paramount, as adaptive platforms collect vast amounts of sensitive data on student performance and behaviors. Without robust ethical frameworks, transparent policies, and inclusive design processes that involve students with disabilities and other stakeholders, these technologies can undermine the very principles of equity and safety they are meant to promote.

Furthermore, a critical barrier often overlooked is the challenge of **content and cultural relevance**. Many educational technologies are developed with a "one-size-fits-all" approach, originating from a Western, often English-language, context. The content, examples, and even the pedagogical approaches embedded in the software may not be culturally responsive or linguistically accessible to all learners (Selwyn, 2022). For technology to be truly inclusive, it must not only be accessible in a physical sense but also in a cognitive and cultural one, reflecting the diverse identities and experiences of the students it aims to serve. Overcoming this requires intentional design and localization, which adds another layer of complexity and cost to development and adoption. In conclusion, while the potential of emerging technologies for inclusive education is undeniable, realizing this potential requires a systemic and multidimensional approach that addresses not just the technological tools themselves, but the deeply entrenched inequities in access, funding, training, and ethical governance that currently prevent their transformative power from being universally realized.

Recommendations

- i. **Integration of Digital Learning Tools:** Governments and educational institutions should prioritize the integration of digital platforms such as e-learning applications, interactive multimedia, and virtual classrooms. These tools can bridge the gap for learners in remote areas, ensuring access to quality education regardless of location or physical barriers.
- ii. **Investment in Assistive Technologies:** To foster inclusivity, policymakers must invest in assistive technologies like screen readers, speech-to-text software, and braille-compatible devices. These innovations empower students with disabilities to participate actively in learning processes, reducing inequality in classrooms and enhancing academic outcomes.
- iii. **Capacity Building for Educators:** Teachers need continuous training to effectively use emerging technologies. Professional development programs should emphasize digital literacy, inclusive pedagogy, and adaptive teaching methods. This ensures educators can design accessible content and leverage technology to meet the diverse needs of learners.
- iv. **Affordable Infrastructure and Policy Support:** Governments and stakeholders should expand affordable internet access, subsidize learning devices, and create supportive policies for inclusive digital education. Partnerships with private sectors can further enhance connectivity and affordability, ensuring that no learner is left behind in the technology-driven education landscape.

CONCLUSION

In conclusion, emerging technological trends have become transformative forces in advancing inclusive and accessible education across the globe. Tools such as artificial intelligence, virtual and augmented reality, learning management systems, and assistive technologies are breaking traditional barriers to learning by addressing issues of disability, geography, and socio-economic disparity. These innovations foster personalized learning, enhance engagement, and democratize access to knowledge, ensuring that marginalized groups are not excluded from educational opportunities. However, while the promise of technology is vast, its full potential can only be realized when governments, educators, and stakeholders invest in digital infrastructure, capacity building, and equitable access. Thus, emerging technologies should not only be seen as instruments of modernization but also as catalysts for social justice and inclusive development in education.

REFERENCES

- Ally, M. (2019). Education for all in the digital age. *International Review of Research in Open and Distributed Learning*, 20(2), 1–19.
- Baker, R. S. (2016). Stupid tutoring systems, intelligent humans. *International Journal of Artificial Intelligence in Education*, 26(2), 600-614.
- Baker, R. S., & Hawn, A. (2021). Algorithmic bias in education. *International Journal of Artificial Intelligence in Education*, 32(4), 1052–1092.

- Basham, J. D., Blackorby, J., & Marino, M. T. (2020). Opportunity in crisis: The role of universal design for learning in educational redesign. *Learning Disabilities: A Contemporary Journal*, 18(1), 71-91.
- Bower, M., & Sturman, D. (2020). What are the educational affordances of virtual and augmented reality? *Computers & Education*, 153, 103897.
- Bozkurt, A. (2019). *From distance education to open and distance learning: A holistic evaluation of history, definitions, and theories*. Palgrave
- CAST (2018). *Universal design for learning guidelines version 2.2*. Retrieved from <http://udlguidelines.cast.org>
- Downes, S. (2007). *What connectivism is*. Half an Hour.
- Downes, S. (2012). *Connectivism and connective knowledge: Essays on meaning and learning networks*. National Research Council of Canada.
- Edyburn, D. L. (2021). Assistive technology and learning disabilities: A systematic review of the literature. *Journal of Special Education Technology*, 36(3), 135-145.
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2013). Removing obstacles to the pedagogical changes required by Jonassen's vision of authentic technology-enabled learning. *Computers & Education*, 64, 175–182.
- GSMA (2023). *The mobile economy: Sub-Saharan Africa 2023*. GSM association.
- Holmes, W., Bialik, M., & Fadel, C. (2021). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
- Kaplan, A. M., & Haenlein, M. (2016). Higher education and the digital revolution: About MOOCs, SPOCs, social media, and the Cookie Monster. *Business Horizons*, 59(4), 441-450.
- Kop, R., & Hill, A. (2008). Connectivism: Learning theory of the future or vestige of the past? *International Review of Research in Open and Distance Learning*, 9(3), 1–13.
- Oyelere, S. S., Bouali, N., Kaliisa, R., Obaido, G., Yunusa, A. A., & Jimoh, E. R. (2020). Exploring the trends of educational virtual reality games: A systematic review of literature. *International Journal of Emerging Technologies in Learning (iJET)*, 15(22), 4-24.
- Papanastasiou, G., Drigas, A., Skianis, C., & Lytras, M. D. (2019). Virtual and augmented reality effects on K-12, higher and tertiary education students' twenty-first century skills. *Virtual Reality*, 23(4), 425-436.
- Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education*. John Wiley & Sons.
- Selwyn, N. (2022). *Education and Technology: Key Issues and Debates* (3rd ed.). Bloomsbury Academic.
- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3–10.
- Siemens, G., & Baker, R. S. (2012). Learning analytics and educational data mining: Towards communication and collaboration. In *Proceedings of the 2nd international conference on learning analytics and knowledge* (pp. 252-254).
- UNESCO. (2023). *Global education monitoring report 2023: Technology in education: A tool on whose terms?*. United Nations Educational, Scientific and Cultural Organization.

UNICEF. (2021). *Seen, counted, included: Using data to shed light on the well-being of children with disabilities*. UNICEF.

Zhang, K., & Aslan, A. B. (2021). AI technologies for education: Recent research & future directions. *Computers and Education: Artificial Intelligence*, 2, 100025.