



Teachers' Preparedness for Inclusive Education at ... Popoola, B. J. (2026)

Teachers' Preparedness for Inclusive Education at Secondary School Level of Education in Nigeria: Policy Compliance in the Era of the Fifth Industrial Revolution

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Abstract

The Fifth Industrial Revolution (5IR) presents significant opportunities for inclusive education by integrating emerging technologies such as artificial intelligence (AI), adaptive learning tools, and assistive technologies into teaching and learning processes. Unlike the Fourth Industrial Revolution (4IR), which emphasised digital transformation and automation, 5IR focuses on human-centered innovation, fostering collaboration between technology and educators to enhance learning outcomes. The reality of what the Nigerian government has achieved in the 4IR has brought to the forefront the debate on the nation's preparedness for the 5IR, particularly in the education sector. While policies advocating for inclusive education exist, their implementation remains a challenge due to gaps in teacher training, digital literacy, and the availability of necessary resources. This study examines the preparedness of teachers in Nigerian secondary schools to implement inclusive education policies and comply with regulatory frameworks in the context of 5IR. Key challenges identified include inadequate professional development programs, limited access to assistive technologies, insufficient funding, and weak policy enforcement mechanisms. Many teachers lack the technical skills required to integrate digital tools effectively into inclusive education practices. To address these challenges, this paper recommends targeted investment in continuous professional development, integration of assistive technologies into teacher education curricula, provision of adequate teaching resources, and strengthening policy implementation. These measures are essential to ensuring that inclusive education policies are effectively translated into meaningful learning experiences for all students, thereby fostering educational equity and innovation in the 5IR era.

Keywords: Assistive technology, Fifth Industrial Revolution, inclusive education, policy compliance, teacher preparedness

Introduction

The concept of inclusive education emphasises the right of all students, regardless of their abilities or disabilities, to access quality education in a conducive learning environment (UNESCO, 2020). In the era of the Fifth Industrial Revolution (5IR), characterised by the fusion of human intelligence and emerging technologies such as artificial intelligence (AI), robotics, and personalised learning, the role of teachers in implementing inclusive education policies has become more critical than ever (Schwab, 2019). The 5IR promotes a human-centric approach that ensures technological advancements cater to the diverse needs of learners, particularly those with disabilities (Lee, 2021). This shift requires teachers to be well-equipped with the knowledge and skills to integrate digital tools into their pedagogy while ensuring inclusivity in secondary education. Inclusive education is not merely a moral imperative but a strategic necessity for fostering equitable learning environments where all students can thrive. According to Sustainable Development Goal 4 (SDG 4), which focuses on ensuring inclusive and equitable quality education for all, nations are encouraged to create education systems that accommodate diverse learner profiles (United Nations, 2015). In Nigeria, where secondary schools serve an increasingly diverse student population, the successful implementation of inclusive education policies is pivotal to achieving this global commitment. However, achieving inclusivity in a technology-driven era demands more than policy frameworks; it requires educators who are digitally literate, adaptable, and empathetic towards students with varying abilities. Despite existing policies advocating for inclusive education, there are significant challenges in implementation, particularly concerning teacher preparedness and policy compliance in Nigeria. Many educators lack adequate training in assistive technologies, digital literacy, and adaptive teaching methods that align with 5IR requirements (Ajayi et al., 2022). Moreover, disparities in access to educational technology further exacerbate the exclusion of students with special needs. The urban-rural digital divide, insufficient infrastructure, and limited funding for special education resources compound the problem, making it difficult for teachers to create inclusive learning experiences. Additionally, systemic issues such as inadequate monitoring, weak enforcement of inclusive education policies, and cultural stigmas surrounding disabilities continue to undermine progress.



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Addressing these gaps is crucial to ensuring that inclusive education policies translate into meaningful learning experiences for all students. This requires a multifaceted approach involving teacher capacity development, infrastructure improvement, and sustained policy enforcement. Collaboration among stakeholders, including the government, school administrators, non-governmental organisations (NGOs), technology providers, and teacher training institutions, is essential to creating an enabling environment for inclusive education in Nigeria's secondary schools. This paper examines the preparedness of teachers in Nigerian secondary schools to implement inclusive education policies using emerging technologies and assesses the level of policy compliance in this regard. It also explores the barriers to effective implementation and offers strategic recommendations to enhance teacher training, promote equitable access to digital resources, and strengthen policy enforcement mechanisms. Ultimately, fostering an inclusive, technology-enhanced learning environment is crucial to empowering all students, including those with disabilities, with the aim of reaching their full potential in the 5IR landscape.

Conceptualising Inclusive Education in the 5th Industrial Revolution Era

The Fifth Industrial Revolution (5IR) represents a significant shift from the digital transformation of the Fourth Industrial Revolution (4IR) by prioritising human-centred technological advancements. While the 4IR emphasised automation, efficiency, and data-driven decision-making, the 5IR focuses on the seamless integration of artificial intelligence (AI) and other emerging technologies with a strong emphasis on personalisation, ethics, and inclusivity in education (Lee, 2021). This transformation aims to ensure that technology serves all learners equitably, including those with disabilities, thereby advancing global efforts to create more accessible and inclusive learning environments (Obi & Adeyemi, 2023). Inclusive education in the 5IR era requires educators to go beyond basic digital literacy and develop specialised competencies in leveraging assistive technologies and adaptive learning platforms to support students with diverse learning needs (Adebayo & Uche, 2022). The use of AI-driven personalised learning software, speech-to-text applications, virtual reality (VR) simulations, and augmented reality (AR) tools has transformed teaching and learning by offering innovative ways to enhance engagement and accessibility. These technologies enable students with physical, sensory, or cognitive impairments to actively participate in classroom activities, bridging gaps in traditional learning methods (Bello & Yusuf, 2021). Additionally, ethical AI integration in education ensures that digital learning systems are designed to reduce biases and provide equitable learning experiences. AI-powered analytics can assist teachers in identifying students who are struggling academically and implementing targeted interventions based on individual learning patterns. For example, adaptive learning platforms use real-time data to adjust instructional content to match the pace and ability of each learner, ensuring that no student is left behind (Eze & Ogundele, 2020). Such innovations foster inclusive classroom environments where students with disabilities receive tailored support that aligns with their specific needs. However, achieving inclusive education in the 5IR era goes beyond technological advancements; it requires strategic policy implementation, teacher training, and infrastructural readiness. National policies must explicitly promote equity, accessibility, and the integration of emerging technologies in secondary education. Schools need adequate resources to implement these changes effectively, ensuring that assistive tools are available and that digital infrastructures are accessible to all students, including those in underserved communities. The success of inclusive education in this era is largely dependent on the preparedness of educators. Teachers must be trained to harness the potential of AI, VR, and other digital innovations to create personalised learning experiences. Professional development programmes should focus on equipping teachers with the necessary skills to integrate assistive technologies into lesson planning, assessment, and classroom management. Without adequate training, even the most advanced technological tools will fail to achieve their intended impact on inclusive education (Adebayo & Uche, 2022).

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The successful implementation of inclusive education in the 5IR era demands a redefinition of teacher competencies. Beyond traditional pedagogical skills, teachers must be equipped with digital fluency, ethical sensitivity, and adaptive teaching strategies (Redecker, 2017). They must be capable of using technology to differentiate instruction and provide personalised support to diverse learners. Unfortunately, current teacher preparation programmes in Nigeria are largely outdated and do not adequately address the demands of inclusive and technologically driven education (Ezegbe, 2015). There is a significant preparedness gap, marked by inadequate exposure to inclusive pedagogies, limited use of ICT in teacher training, and poor access to continuous professional development opportunities.



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Policy Compliance: Issues and Challenges

Policy compliance among teachers is influenced by multiple factors, including their understanding of policy provisions, availability of resources, administrative support, and perceived relevance of policies to classroom realities (Lipsky, 1980; Oloruntegbe, 2011). In many cases, teachers in Nigerian secondary schools operate under constrained conditions, which affect their ability to comply with inclusive education policies. High student-teacher ratios, lack of instructional materials, and insufficient training limit their capacity to implement inclusive strategies. Moreover, there is a disconnect between policy formulation and implementation. Policies are often top-down and fail to engage teachers as critical stakeholders in the implementation process (Arinze & Okoli, 2015). As a result, compliance becomes mechanical or selective, rather than transformative. It is important to note that the 5IR presents an opportunity to reshape inclusive education by merging technological innovation with human-centred approaches. By embracing AI-driven solutions, adaptive learning platforms, and ethical digital integration, education systems can foster environments where every student—regardless of ability—can access quality learning experiences. However, to realise this vision, policymakers, educators, and stakeholders must work collaboratively to ensure the equitable implementation of technology in education.

Policy Frameworks for Inclusive Education in Nigeria

Inclusive education is a global agenda that promotes equal access to quality education for all learners, irrespective of their abilities or backgrounds. Nigeria, in alignment with international commitments such as the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) and the Sustainable Development Goals (SDGs), has established several national policy frameworks to support inclusive education.

1. National Policy on Education (NPE) is the foundational document on which the structure of education in Nigeria is premised. It was first published in 1977 and most recently revised in 2013. It advocates for inclusive education by encouraging the integration of learners with special needs into mainstream schools and highlights the need for teacher training, curriculum adaptation, and the establishment of special education units (Federal Ministry of Education [FME], 2013). Despite these provisions, challenges such as limited resources, inadequate infrastructure, and poor teacher preparedness hinder effective implementation.
2. National Policy on Special Needs Education (2015), is a complimentary policy document to the NPE. It specifically addresses the education of children with disabilities, the gifted, and other marginalised groups. This policy underscores continuous professional development for teachers in inclusive pedagogies, behaviour management, and the use of assistive technologies. It promotes stakeholder collaboration, particularly with NGOs and community groups, to mobilise resources and reduce stigma (FME, 2015). Nevertheless, implementation remains weak due to limited funding and infrastructural gaps.
3. The Universal Basic Education (UBE) Act of 2004 guarantees free and compulsory education for all Nigerian children, including those with disabilities. It mandates the establishment of inclusive schools and the provision of specialised learning materials and personnel (UBEC, 2017). However, a lack of teacher training and inadequate facilities continue to restrict its impact, especially in rural areas.
4. The Discrimination Against Persons with Disabilities (Prohibition) Act (2018), is a significant legal document which was developed to prohibit all forms of discrimination and requires schools to provide reasonable accommodation for learners with disabilities. It enforces inclusive admission policies and mandates accessible infrastructure, offering legal recourse for individuals facing discrimination (Federal Republic of Nigeria, 2018).
5. The National Policy on Inclusive Education in Nigeria (2023) presents a comprehensive framework to ensure equitable access to quality education for all learners, regardless of disability, socio-economic status, or gender. It promotes non-discriminatory, enabling learning environments through inclusive pedagogies, assistive technologies, and flexible curriculum adaptation (National Policy on Inclusive Education in Nigeria, 2023). The policy is aligned with Education 5.0 which is characterised by artificial intelligence, virtual reality, and automation, requiring teachers to possess competencies in digital literacy, adaptive pedagogy, and data-informed instruction (Ahmad et al, 2023).

To foster teacher preparedness, the policy emphasises continuous professional development in inclusive strategies such as Universal Design for Learning (UDL), differentiated instruction, and co-teaching. The Federal Ministry of Education, in collaboration with agencies like NSSEC and Google, is training secondary school teachers in AI and digital tools, embedding 5IR principles into classrooms.



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Additionally, inclusive education content has been integrated into pre-service teacher education curricula in line with NCCE standards, while UBEC and development partners like UNICEF and DFID support in-service training. The policy promotes the use of assistive technologies, including speech-to-text software and screen magnifiers, to enhance learning for students with disabilities and those from marginalised groups. Programmes like the 3 million Technical Talent (3MTT) initiative further support teachers in engaging with emerging technologies (National Information Technology Development Agency, 2023). Compliance mechanisms now require teachers to demonstrate proficiency in inclusive and digital teaching. Schools must implement inclusive policies, offer reasonable accommodations, and adapt curricula to learners' needs (Pinnock, 2020). Oversight is provided by institutions such as the Federal and State Ministries of Education, UBEC, NCCE, and NCPWD, with support from private sector partners. Despite these efforts, implementation faces challenges including inadequate training, poor infrastructure, limited mentorship, and unequal funding. These barriers threaten the effectiveness and equity of inclusive education in Nigeria. Nonetheless, the policy reflects a significant step toward an inclusive, technology-driven educational future.

Challenges and Gaps in Policy Implementation

According to the Federal Republic of Nigeria (2013) in National Policy on Education (section 9 sub-section 139 (g)), States Ministries of Education are not just to provide appropriate education policies, they are equally to ensure their enforcement (Popoola, 2019). Despite the existence of several policies designed to promote inclusive education in Nigeria, significant gaps persist in their implementation. These gaps are particularly evident in teacher preparedness, availability of infrastructure, and compliance with technological integration in inclusive education. According to Ogunleye (2019), many public secondary schools in Nigeria still lack the infrastructure necessary to implement inclusive education effectively, which further widens the gap between policy and practice. Additionally, Okoro (2020) highlights the limited collaboration between government agencies, educational institutions, and private sector stakeholders, which results in fragmented efforts, thereby hindering sustainable progress in inclusive education. These challenges are explored in detail below.

Inadequate Funding

One of the most pressing barriers to the successful implementation of inclusive education policies in Nigeria is inadequate funding. Limited financial resources hinder the construction of accessible infrastructure, the procurement of assistive technologies, and the provision of specialised training programmes for teachers. Without sufficient funding, many schools struggle to provide the necessary facilities to accommodate learners with disabilities. Many public schools, particularly those in rural areas, lack essential infrastructure such as ramps, accessible restrooms, and designated learning spaces for children with special needs (Ajuwon, 2012). The absence of these facilities not only prevents children with disabilities from accessing education but also limits their ability to engage effectively in learning activities. Furthermore, assistive technologies—such as braille materials, hearing aids, and communication devices—are expensive and remain unaffordable for most public schools and families. Consequently, learners who require these resources are often left without the necessary support to thrive in mainstream classrooms (Obiakor & Offor, 2011). In addition, inadequate funding affects teacher training and professional development. Many teacher training institutions lack the resources to incorporate comprehensive courses on inclusive education. As a result, teachers often enter the profession without the skills required to support diverse learners, thereby exacerbating the challenges of inclusion.

Teacher Capacity and Training Deficiencies

Another significant obstacle to the effective implementation of inclusive education is the lack of teacher preparedness. Many teachers in Nigeria lack the knowledge, skills, and confidence to manage diverse classrooms effectively. Teacher education programmes in the country often provide little to no training on inclusive pedagogies, differentiated instruction, or behaviour management strategies for learners with special needs (Eleweke & Rodda, 2002). Without adequate training, teachers may unintentionally exclude or neglect learners with disabilities, thereby impeding their academic progress and social integration. The absence of specialised training also means that teachers may not be equipped to use assistive technologies or adapt lesson plans to accommodate students with different learning needs. In some cases, educators may struggle with identifying disabilities in students, leading to misinterpretations of learning difficulties as behavioural issues rather than cognitive or developmental challenges. This further affects the learning outcomes of children with disabilities.



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Furthermore, many teachers experience excessive workloads and large class sizes, making it difficult for them to provide individualised attention to students who require additional support. In the absence of additional teaching assistants or special education professionals, mainstream teachers are often unable to meet the needs of all learners effectively.

Cultural and Social Barriers

Deeply rooted societal perceptions and cultural biases also contribute significantly to the challenges faced in implementing inclusive education in Nigeria. There remains a widespread stigma associated with disabilities, leading to discriminatory attitudes that affect both families and schools. Some families, due to shame or societal pressure, hide their children with disabilities rather than enrolling them in school. Others perceive children with disabilities as incapable of learning and, as a result, do not prioritise their education. In schools, learners with disabilities may face bullying, discrimination, or isolation from both peers and educators. Teachers who lack training in inclusive education may have negative perceptions of students with disabilities, leading to lower expectations and reduced engagement in their learning process. This creates a discouraging environment for students with special needs, making it even more difficult for them to succeed in mainstream classrooms (Abang, 2005). Overcoming these cultural barriers requires sustained community engagement, advocacy, and public awareness campaigns. Parents, educators, and community leaders must be involved in changing societal attitudes towards disability and promoting the value of inclusive education for all learners. Government agencies and non-governmental organisations (NGOs) have a role to play in sensitising communities on the importance of supporting children with disabilities in accessing quality education.

Weak Monitoring and Evaluation Mechanisms

It is assumed that policy is as good as the extent to which it is complied with but the objective for formulating such policy might not be achieved if the process that is expected to ensure compliance is compromised (Popoola, 2019). The absence of effective monitoring and evaluation systems remains another major challenge in the implementation of inclusive education policies in Nigeria. Many schools do not collect data on the enrolment, retention, or performance of learners with disabilities, making it difficult to assess progress and identify gaps in policy implementation (Garuba, 2003). Without reliable data, policymakers struggle to develop targeted interventions to improve inclusive education. Furthermore, a lack of accountability mechanisms means that many schools do not adhere to national policies on inclusive education. Schools may fail to provide the required support services for learners with disabilities, yet there are often no consequences for non-compliance. In some cases, allocated funds for inclusive education may be mismanaged or diverted, further hindering progress. These are challenges which must be addressed by the Nigerian government and other stakeholders concerned with the education enterprise.

Conclusion

The era of the Fifth Industrial Revolution presents unique opportunities for inclusive education in Nigeria. However, teacher preparedness remains a significant determinant of policy compliance and successful implementation. Addressing training gaps, improving digital competence, and ensuring effective policy enforcement are crucial steps towards achieving a more inclusive secondary education system. Future research should explore the impact of emerging technologies on learning outcomes in inclusive classrooms.

Recommendations for the Study

1. **Teacher Training:** Continuous professional development programmes should systematically integrate digital competencies and inclusive pedagogical practices to prepare teachers for effective engagement within Fifth Industrial Revolution (5IR) learning environments.
2. **Teacher Education Curriculum:** Teacher education institutions should embed structured training in assistive technologies and digital fluency to enhance teachers' capacity to address diverse and individualised learning needs.
3. **School Infrastructure:** Governments and educational stakeholders should prioritise sustained investment in technologically advanced infrastructure to support inclusive, immersive, and innovation-driven learning ecosystems.
4. **Mindset Development:** Professional sensitisation initiatives should promote human-centred, collaborative, and inclusive orientations towards educational technology to strengthen meaningful 5IR adoption in schools.
5. **Policy Monitoring:** Regulatory frameworks should incorporate data-driven and AI-supported monitoring mechanisms to strengthen policy implementation, accountability, and continuous improvement in inclusive education delivery.



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