Chapter 4
Supporting Learners With Disabilities in Digital Environments: An Inclusive and Proactive Approach

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ABSTRACT

As digital education reshapes the global learning landscape, this chapter examines the tension between innovation and inequity, especially for children with special needs (CwSN). While online platforms offer flexibility, they often exclude learners with Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), and Specific Learning Disabilities (SLD) due to normative design assumptions. This chapter explores how inclusive digital environments can be proactively designed to support cognitive diversity. Grounded in Universal Design for Learning (UDL) and Web Content Accessibility Guidelines (WCAG), it outlines pedagogical, technical, and systemic strategies to transform digital education from a tool of standardization to one of empowerment. It highlights the role of assistive technologies and the need for teacher capacity building. Moving beyond isolated interventions,

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the chapter calls for inclusion to be embedded from the outset. Through theory, practical models, and policy suggestions, it reimagines inclusive education as a design for human potential.

INTRODUCTION

Rapid digitalization of education, accelerated by the global COVID-19 pandemic, has changed how learning is delivered and experienced. Digital learning platforms worldwide became essential means of continuity in education, replacing classrooms with virtual environments almost overnight (Pluzhnikova, 2021). This transition created unprecedented flexibility, personalization, and scalability, but also exposed and reinforced deep-rooted inequities in the education system, especially for learners with disabilities. Digital learning, as a democratizing force, often has its limitations reflected in design, pedagogy, and policy that do not take into account neurodiverse needs. The current chapter sits at the intersection of digital education and inclusive practices, critically considering how virtual learning environments can be reshaped to accommodate and empower learners with disabilities, ASD, ADHD, and specific learning disabilities (SLD) (Zionch, 2011).

According to the principle of inclusive education established in international frameworks such as the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD, 2006) and reinforced by UNESCO (2017), every person has the right to a quality education in environments that respect human diversity. Inclusion means much more than allowing learners with disabilities into mainstream classrooms or platforms, it means altering the very ethos, structures, and practices of education in order to promote participation and achievement for all. But in digital environments, inclusion remains an ideal rather than a lived reality. Digital systems constructed around normative cognitive, sensory, and behavioral profiles marginalize learners with disabilities disproportionately, in terms of individuals who think, perceive, and process differently.

For instance, learners with Autism Spectrum Disorder might find digital interfaces disorienting because they lack predictable structure, social cues, or contain overwhelming sensory stimuli. Visible clutter, ambiguous instructions, or abrupt layout changes can induce anxiety and disengagement. ADHD sufferers struggle with attention regulation, task persistence, and working memory, skills needed for self-paced or asynchronous learning environments (Solomonidou et al., 2004). Environments without interactive feedback, consistent prompts, or scaffolding become places of frustration rather than empowerment for these learners. Similar situations may occur for students with Specific Learning Disabilities (e.g., dyslexia or dysgraphia) who find text-dense interfaces unusable without alternative repre-