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Innovative pedagogies for inclusive education: a systematic literature review of assistive technology within the universal design for learning framework

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Abstract

Purpose

The world continues to draw attention towards inclusive education as a contemporary remedy to the realisation of the right of every individual student to access equitable and quality education and holistic development in appropriate learning environments. Unfortunately, this goal remains challenging to attain globally, necessitating innovative pedagogical strategies that accommodate the diverse learning needs of students. This paper examines how the integration of Assistive Technology within Universal Design for Learning framework can empower educators to facilitate technologically inclusive, differentiated and equitable learning experiences and outcomes for all students.

Materials and methods

This study draws from a systematic literature review of 23 empirical studies, thematically analysed and presented, to highlight practical strategies for integrating innovative education-based technologies to advance 21st-century inclusive pedagogy.

Findings

The findings reveal that integrating Assistive Technology into the Universal Design for Learning-based approach enhances individualised learning opportunities, participation, autonomy and academic attainment, offering an accessible pathway to ensuring inclusive education. Nonetheless, barriers exist that require concerted efforts to mitigate and leverage Assistive Technology as pedagogical tools.

Conclusion

Assistive Technology integration within the Universal Design for Learning presents a powerful trajectory towards innovative, equitable and student-

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centred pedagogy in education. The study, therefore, offers practical insights for teachers, policymakers, and scholars seeking to leverage technology to promote 21st-century inclusive education pedagogy.

IMPLICATIONS FOR REHABILITATION

- Provision of AT resources: Ensuring educational institutions have access to adequate and appropriate AT that meets the diverse needs of students is no longer a privilege, but a right that must be upheld by advocates and stakeholders of inclusive education.
- Tailored professional development: Technology can only effectively work with human resources that are well-equipped with the prerequisite skills. Teachers, therefore, require continuous refresher training courses that target proficiency in the use of AT as innovative pedagogical tools to offer appropriate support to students with disabilities/special educational needs.
- Policy reforms: The establishment of strong, inclusive education policies that support and facilitate the integration of AT within the UDL framework is necessary to meet student diversity.
- Collaborative planning: The users of AT (teachers and students), education administrators and technology specialists need to work together in deciding on and implementing AT to ensure it meets the diverse needs of students.
- Ongoing assessment: There is a need for continuous assessment of the efficacy of AT to make informed modifications and improvements that ensure adaptability and acceptance among the users.
- Inclusive curriculum design: The Curriculum design and development ought to integrate AT from the onset as an innovative pedagogical initiative to accommodate the diversity of students, as advocated in the UDL.

Keywords:

[Assistive technology](#) [universal design for learning](#) [innovative pedagogy](#)
[inclusive education](#) [technology integration](#) [differentiated instruction](#)

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Ethical approval

The study did not require institutional ethical approval. The consent was sought from every author to participate in the study.

Disclosure statement

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Additional information

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