Hybrid Pedagogical Models for Teaching Coding Concepts in Sub-Saharan Africa: An Assessment of Student Learning Outcomes After Six Months

Ahmed El-Masry[1,2], Noura Al-Sayed[2]

[1] Department of Research, Academy of Scientific Research and Technology (ASRT)

[2] Assiut University

Author notes

Ahmed El-Masry is affiliated with Department of Research, Academy of Scientific Research and Technology (ASRT) and focuses on Arts & Humanities research in Africa.
Noura Al-Sayed is affiliated with Assiut University and focuses on Arts & Humanities research in Africa.

Abstract

Coding education is increasingly important in primary school curricula worldwide. However, its implementation in Sub-Saharan Africa faces unique challenges due to cultural and pedagogical differences. A mixed-methods approach was employed, including pre- and post-tests with coding assessments, teacher interviews, and student surveys. A sample of 120 primary school students from four randomly selected schools was used. The hybrid model significantly improved student understanding of basic coding concepts compared to traditional teaching methods ($p < 0.05$). Hybrid pedagogical models, combining digital resources with hands-on activities, appear promising for enhancing coding education in Sub-Saharan Africa. Further research should explore scalability and sustainability of these hybrid models across different regions and contexts.

Keywords: *Sub-Saharan, Pedagogy, Blended Learning, Curriculum Design, Indigenous Knowledge Systems, Technocultural Barriers, Student Engagement*

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