

Influence of Utilisation and Design of Curriculum Digital Content on Biology Instructional Process among Secondary Schools in Nairobi County, Kenya

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Abstract

The quality of curriculum and curriculum support materials used by the teachers and learners affects the quality of education that is delivered during an instructional process. For many years, educational materials have mostly been static text with pictures printed in books. These kinds of materials do not have strong potential to provide appropriate learning environment for learners who are technologically savvy and who expect interactive engaging learning experiences. In recent years, there has been rapid expansion in digital content development and access in schools. There have been many initiatives geared towards development and provision of digital content to schools in Kenya. However, little has been done to ensure that learners and teachers actually utilize the digital content in the instructional process. This study therefore investigated the influence of utilisation and design of curriculum digital content on Biology instructional process among secondary schools in Nairobi county, Kenya. It also sought to provide a model for development of effective digital content for Biology instruction. It was guided by five specific objectives. These include to; establish secondary school learners' and teachers' utilisation of curriculum digital content in the Biology instructional process, determine whether utilisation of secondary school curriculum digital content influences the Biology instructional process, analyse the nature, and influence of curriculum digital content multimedia elements on the secondary school Biology instructional process, examine the formulation, and influence of curriculum digital content user interface on the secondary school Biology instructional process and derive a model that can guide the design and development of an effective digital content for secondary school Biology curriculum. A mixed methods design was used for the study which involved fifteen ESP-ICT phase 1 secondary schools and two digital content development institutions in Nairobi county. Six instruments were used for data collection which include; Biology teacher questionnaire, learners' focus group discussion guide, Biology teaching and learning resources inventory, digital content analysis sheet, documents analysis sheet and digital content developers' interview schedule. The collected data was analysed using both descriptive and inferential statistics and presented in form of notes, numerals, tables, and graphics. This study found out that utilisation of curriculum digital content influenced assessment and achievement of learners in Biology positively. However, the study found no significant difference in syllabus coverage between the groups that utilised Biology digital content and the ones that did not. There were also issues in Biology digital content access, multimedia elements and user interface which affected content utilisation and consequently its influence on the instruction process. Packaging and dissemination of digital content in both online and offline formats was recommended to improve the level of access and utilisation of digital content. To address the design issues of the content, the study recommended that developers do proper needs

analysis, proper combination of multimedia elements and design appropriate user interfaces. The study also derived a model that can guide and improve the process of developing more effective curriculum digital content.

Keywords: Design of Curriculum, Digital Content on Biology, Instructional Process, Secondary Schools, Nairobi County, Kenya

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