Information, knowledge and learning:
Is the Web effective as a medium for Mathematics teaching?

by
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Abstract

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Title: Information, knowledge and learning: Is the Web effective for Mathematics teaching?

This document is a report on an experiment in which mathematical skills were taught to first year university students using the Web as a method of instructional delivery. Special attention was paid to the ability of students from disadvantaged backgrounds to cope with this method of delivery. Overall, the results obtained by students using this method were slightly better than that of students on the equivalent paper-based course. However, students from disadvantaged backgrounds fared marginally worse than those on the paper-based course. The results of these students allow extrapolation to a broader context where Web-based teaching of disadvantaged communities may be used.

Definitions for knowledge, information, learning and teaching were developed. These definitions were then used as the foundation for creating the Web pages used in the experiment.

Keywords Knowledge; information; learning; teaching; Web-based teaching; Web-based learning; technology-enhanced learning; mathematics skills; underprepared students; Logo.
Opsomming

Kandidaat: Benjamin Alan Carr
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Titel: Inligting, kennis en leer: Is die Web effektief vir Wiskunde onderrig?

Hierdie tesis is ‘n omskrywing van ‘n ondersoek waarin wiskundige vaardighede aan eerstejaar universiteitsstudente oorgedra is deur middel van die Web as vervoermedium. In hierdie studie is voorsiening gemaak vir die moontlikheid dat studente van voorheen benadeelde groepe met hierdie vervoermedium nie sal byhou nie. In die algemeen, is die uitslae van studente wat hierdie metode gevolg het effens beter as die van studente wat die gelykstaande papier-gebaseerde kursus geloop het; maar studente van voorheen benadeelde groepe het effens slegter gevaar as studente op die papier-gebaseerde kursus. Die uitslag van hierdie oefening laat die uitbreiding toe tot ‘n wyer gebied waar Web-gebaseerde onderrig in voorheen benadeelde gemeeskappe gebruik mag word.

Definisies ten opsigte van kennis, inligting, leer en onderrig is ontwikkel. Hierdie definisies is gebruik as die fondament vir die skepping van die Web-blaaie wat in hierdie studie gebruik is.

Sleutelwoorde Kennis; inligting; leer; onderrig; Web-gebaseerde onderrig; Web-gebaseerde leer; tegnologie-versterkte leer; wiskundige vaardighede; ondervoorbereide studente; Logo.
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Notes to the reader

Referencing books In this document, when a book is referenced, the page number is included as part of the reference in the body text. The reason for this being that anyone (including me) wishing to check on a book reference will know exactly where in the book the item under discussion was obtained without having to wade through the whole book.

Quotations Quotations in the body text are surrounded by quotation marks ("'). Where the quotation is a paragraph, an indented paragraph is used with the text in italics and no quotation marks.