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YUNIBESITHI YA PRETORIA

An investigation into the interaction between multiple intelligences and the performance of learners' in open-ended digital learning tasks.

By

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Doctor of Philosophy (PhD)

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July, 2006.

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Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy (PhD)

University of Pretoria
Faculty of Education

Department of Curriculum Studies

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Prof. John Rogan

Co-Supervisor: Prof. Johannes Cronje

July, 2006.

Declaration

I declare that this research report handed in herewith for the degree of Doctor of Philosophy at the University of Pretoria is the researcher's independent work. It has not been submitted for a degree or examination before in this or any other university.

Eugenia J. Kafanabo.
Submitted: July, 2006.

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Acknowledgement

The realization of this thesis is the result of the efforts, support and encouragement of many who were with me throughout the whole process of my doctoral studies. I wish to gratefully acknowledge their help to:

- All my supervisors Dr Annemarie Hattingh, Prof. John Rogan, and Prof. Johannes Cronje for their assiduous reading, corrections and guidance through out the process of this study to finally have the following version of the thesis.

- All the Headmistresses of schools, teachers, students, and parents of the students from Forodhani, Kisutu, Kibasila, and Ruaha Secondary schools who without their cooperation, I could not have got the data I used to complete my thesis.

- NUFFIC through TEAMS project in Tanzania for providing the financial assistance needed during the whole period of my study.

- Roger Loveday my editor for working through my thesis and giving it the final finishing in the language editing, and strengthening of the content.

- All my colleagues with whom we shared the postgraduate computer laboratory for their support morally, spiritually, emotionally and the sharing of ideas during discussions, seminars and support groups.

- My colleagues at University of Dar es Salaam, Faculty of Education for their encouragement, emotional support during the whole period of my study.

- My parents Mr. Joseph Kafanabo and Mrs. Ziphora Kafanabo and my siblings for their unconditional love, support and encouragement throughout the process of my studies. They believed in me when I did not believe in myself. They stayed with my daughter Juliet when I was away for four years in South Africa.

- My special and beloved daughter Juliet Kafanabo, for her love and support.

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✍ Dedication

This work is dedicated to my parents Mr. Joseph Kafanabo and Mrs. Ziphorah Kafanabo who inspired and motivated me to get educated and believed in the power of education for the betterment of the families.

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✍ Key Words

Authentic assessment

Authentic tasks

Computer application skills

Curricula

Information Communication Technology (ICT)

Intelligence profiles

Learner-centred instruction

Multiple intelligences

Open-ended digital learning tasks

Performance assessment

Scoring rubrics

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Abstract

In this study, I investigated the interactions between multiple intelligences and performance of learners in open-ended digital learning tasks, and to suggest possible approaches to the teaching and learning process using computers in Tanzania.

With the current introduction of computers in the education system in Tanzania, the qualities of instruction and learner participation in learning computer application skills and achievement have not necessarily shown improvement (Nelson, Post, & Bickel, 2003; Tilya, 2003). It is imperative for computer teachers to know the pedagogical strategies that can help them use the current technology effectively. Researchers in instructional design have suggested instructional methods that incorporate methods that encourage the use of learner-centered instruction, incorporating activity oriented methods, and problem solving that are designed around real-world problems (Huba & Freed, 2000). Learners will be able use their knowledge effectively, reveal their uniqueness as learners, and learn computer application skills in a social setting (Gardner, 1983; Wiggins, 1993, 1998; Teele, 2000; Huba & Freed, 2000).

The theory of multiple intelligences by Howard Gardner (1983) was used as the theoretical framework for this study. The theory postulates that that everybody has at least eight intelligences which reflect different ways of interacting with the world. In an effort to achieve quality learning, learning must be based on multiple approaches with a series of activities which are authentic in nature and have to be completed by the learners.

The study was conducted in Tanzania using a qualitative research design. Four secondary schools were selected and 40 learners doing computer studies course participated in the study. Four intelligences from the theory of multiple intelligences were assessed: logic-mathematical, verbal-linguistic, visual-spatial and interpersonal intelligences. Assessment was done using performance assessment procedures.

The findings indicated that there are distinctive intelligence profiles apart from the four intelligences that were investigated in this study. Despite the intelligence profiles of the learners, didactical issues that will enhance ICT adoption in the education environment are important. These include the use of authentic tasks, performance assessment to acknowledge learners unique performance abilities across several intelligences and teachers familiarization in the use of performance assessment procedures.

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Acronyms used

AIDS	-	Acquired Immunodeficiency Syndrome
CA	-	Chronological age
CD	-	Compact Disks
ECI	-	Emotional Competence Inventory
"g"	-	General Intelligence
HIV	-	Human Immunodeficiency Virus
ICT	-	Information Communication Technology
IEA	-	International Association for Evaluation
IQ	-	Intelligence Quotient
MA	-	Mental Age
MI	-	Multiple Intelligences
MIDAS	-	Multiple Intelligences Developmental Assessment Scales
MOEC	-	Ministry of Education and Culture of Tanzania
NECTA	-	National Examination Council of Tanzania
PC	-	Personal Computer
SITES	-	Second International Technology in Education Study
STS	-	Science Technology and Society
TIMI	-	Teele Inventory of Multiple Intelligences
TV	-	Television
UDSM	-	University of Dar Es Salaam
UP	-	University of Pretoria
WAIS	-	Wechsler Adult Intelligence Scale
WISC	-	Wechsler Intelligence Scale for Children

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