EDUCATIONAL MULTIMEDIA SYSTEM IN TEACHING MATHEMATICS: A CASE STUDY OF STUDENTS WITH AUTISM

A

THESIS

BY

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LETTER OF CERTIFICATE

This is to certify Mr. Hari Krishna Budhathoki, a student of academic year 2012 with Campus roll No. 2465, Exam Roll No. 281052, Thesis No. 1086 and TU Registration No. 9-1-21-103-2005, has completed his thesis under my guidance during the period prescribed by the rules and regulation of T.U., Nepal. This thesis entitled **"Educational Multimedia System in Teaching Mathematics: a Case Study of Students with Autism"** embodies the result of his investigation conducting during the period of 2015 at the Department of Mathematics Education, University campus, Kirtipur, Kathmandu. I recommend and forward that his thesis be submitted for the evaluation for awarding the Degree of Master of Education.

……. ……

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Date: ……., 2016

LETTER OF APPROVAL

A

Thesis by

Hari Krishna Budhathoki

Entitled

Educational Multimedia System in Teaching Mathematics: A Case Study of Students with Autism

has been approved in partial fulfillment requirements for the degree of

Master of Education

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Date: ……, 2016

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This study is due in great part to my parents, Mr. Shree Bahadur and Mrs. Bhagawoti. My parents taught me my first lessons in life; set a goal and stay strong, choose a pencil over a broom whenever possible, and love with all of your heart and none of your judgments.

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I have heard numerous stories of how ‘the system’ fails the Autistic learner, and felt for many years that somehow the pairing of HCI and education was a possible answer. My path to testing EMS specifically for young learners identified to be on the ASD was indeed my passion and one that I gained much inner satisfaction from while conducting the study.

Hari Krishna Budhathoki

ABSTRACT

This study examines impact of Educational Multimedia System in teaching mathematics for autistic students. As the number of children diagnosed with autism spectrum disorder grows every year, the public's attention on the subject has naturally increased as well. It is important to understand that autism is not as portrayed by popular culture or as depicted in some movies, especially in an autistic student's ability to do or not do higher order mathematics. However, there are some effective teaching strategies that allow autistic students to improve their critical thinking and problem solving skills needed to solve mathematical problems.

This study was designed as a qualitative research that includes a case 'autism'. The researcher used tools like semi-structured interview, observation form to collect the primary data from respondents. The researcher used Lev Vygotsky's constructivism theory and Mayer's cognitive theory of multimedia learning to analyze and interpret the data to produce information and draw conclusion on the study.

Different views and the behaviors of the respondents related to the mentioned themes was collected together under same theme and explained in their perspective by cross triangulation method. From the analysis and interpretation of the data the researcher found that interest, communication, language, sensory impairments, and abstractness of mathematics are highly affecting factors in mathematics learning for ASD students. So, the school administration and the subject teacher should pay more attention and use Educational Multimedia System to create favorable environment in mathematics class for ASD students.

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ABBREVATION

ASD- Autism spectrum disorders

CAI- Computer Aided Instruction

EFA- Education for All

EMS- Educational Multimedia System

HCI- Human-Computer Interaction

ICT- Information Communication Technology

IRD- Improvement Rate Difference

NGO- Non Governmental Organization

NRC- National Research Council

OHP- Over Head Projector

ZPD- Zone of Proximal Development