ICT INTERVENTION IN SPECIAL EDUCATION IN THE CASE OF DYSLEXIA IN KENYA

by

Abuodha Lucy, Dr Elisha Opiyo and Prof Okello Odongo

Presentation Outline

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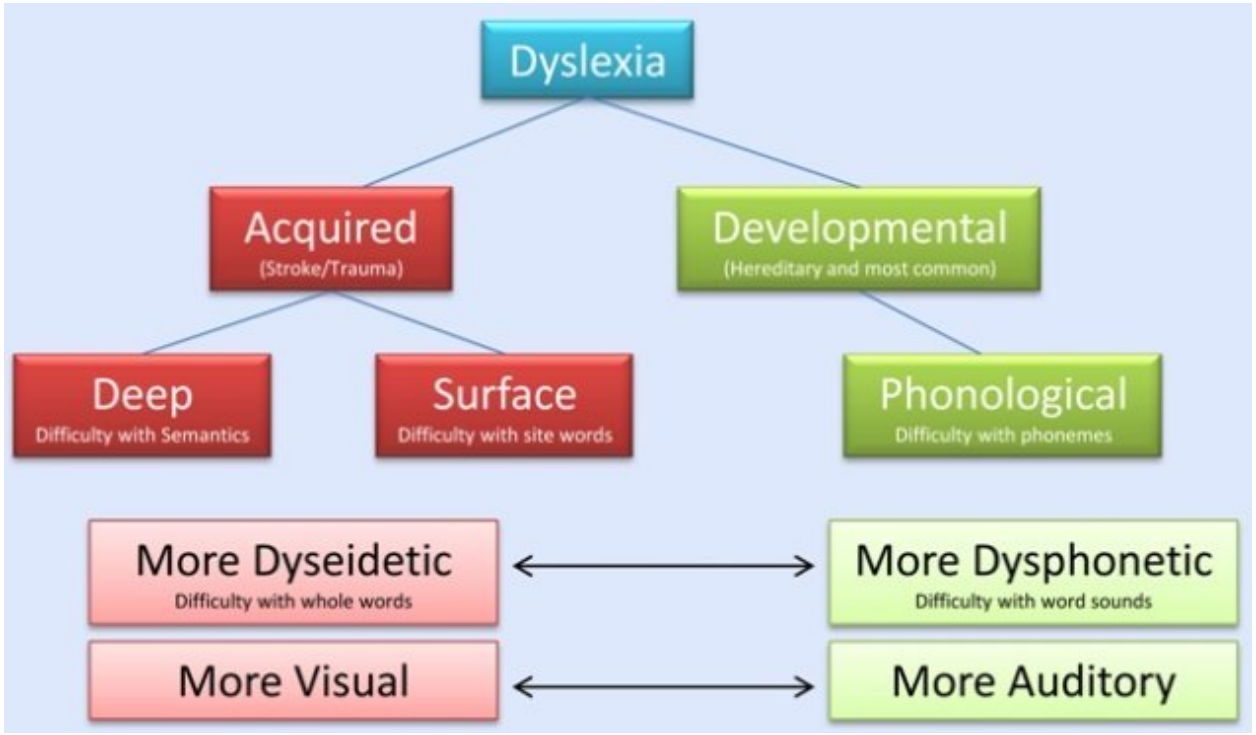
TERMS DEFINITION

- Dyslexia, or specific learning disability, is defined as an unexpected difficulty in learning in relation to cognitive ability, education, or professional status (Shaywitz et al, 2008)
- ICT-Information Communication Technology

INTRODUCTION

- Dyslexia is a neurologically-based, often familial, disorder which interferes with the acquisition and processing of language. Dyslexia is not a sign of low intelligence, rather it is a condition that affects the way the brain processes information that comes in form of written or spoken words
- One of the most recent policy documents in education is Sessional Paper No. I of 2005 on a Policy Framework for Education, Training and Research through this document the government intend to ensure that all children eligible for primary schooling have opportunity to enrol, remain in school to learn and acquire quality basic education, based on its commitment to achieve Education for All (EFA) by 2015

Acquisition of dyslexia: Adapted from: http://www.dyslexia-reading-well.com/types-of-dyslexia.html



BACKGROUND

- It is estimated that dyslexia has a prevalence of 5% to 17% among school-age children according to Shaywitz SE, (2008).

  Dyslexic children have the following difficulties which even make learning process harder for them

i. Lack or late detection of dyslexia

ii. Lack of parental awareness of the condition of the children

iii. Children suffering from dyslexia are not given much attention as opposed to other learning disabilities e.g. autism.

Problem Statement

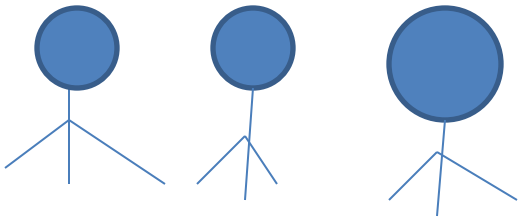
- Children with dyslexia suffer from lack of memory retention (MRI; Klingberg et al 2000) suggests that there are differences in the left temporo parieto-occipital brain regions between dyslexic and non impaired readers

Deficit in working memory is a common feature of a wide range of developmental disorders and specific learning difficulties including dyslexia, specific language impairment, reading and mathematical difficulties (Archibald & Gathercole,2007) thus hindering their academic achievement

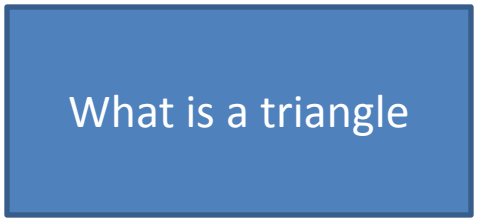
Problem Statement

Example:

Session children are taught:



Session they are being asked questions:



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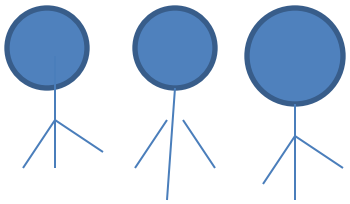


OBJECTIVE OF RESEARCH

- To come up with a ICT enhanced memory tool that will help the children memory retention
- To identify if the ICT based memory tool actually enhances memory retention in children with dyslexia
- To compare whether the ICT enhanced memory tool will provide a preferred learning environment compared to traditional methods
- To determine whether the ICT enhanced memory tool will help the children to advance in their grades

Literature Review

- **ICT tools for dyslexic children in developed countries**.

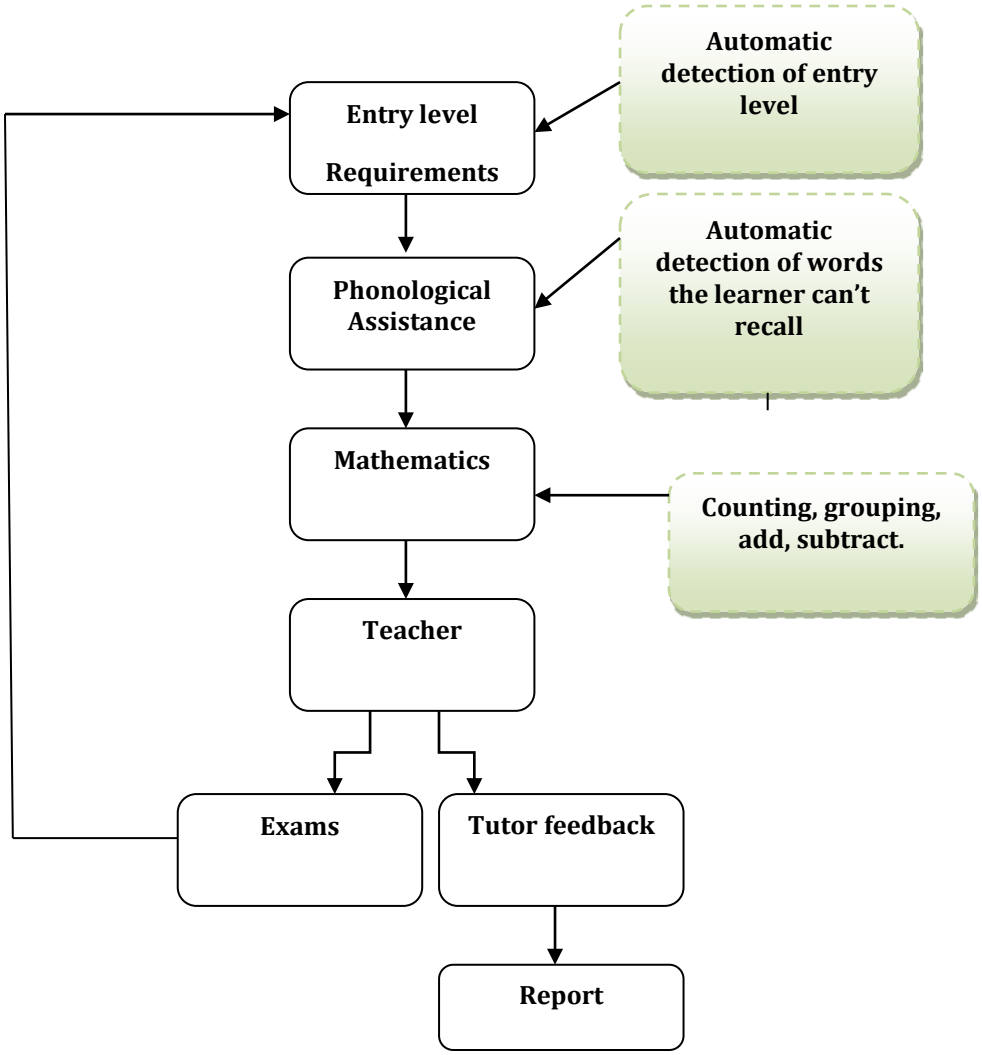
  Karsh and Repp (2008) note that “learning disabled students are less proficient than their peers in acquiring basic maths skills and the discrepancy increases with age". They note further the computers can "motivate, increase engagement, provide increased opportunities for individualized instruction, provide immediate reinforcement and feed-back, and provide detailed data about the child's performance”.

  They cite two studies Watkins and Webb (1981) who found that a learning disabled group who received ten minutes a day on CAI (Math Machine) performed significantly better on both standardized and criterion referenced tests than did a similar group who received traditional classroom instruction in Maths

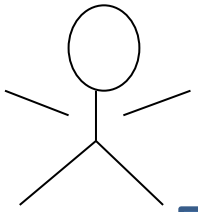
Literature review

- Gregor et al., (2003) developed ‘Seeword’, a word processing environment which assist dyslexic computer users when producing and reading text
- According to Davidson and Lewin (2007) in approaches to the provision of education for children with dyslexia used a remedial program known as Dyslexia Training Program (DTP) which uses a variety teaching approaches that appeal to the visual, auditory and kinaesthetic senses. It involves a highly structured phonetic-instruction training with heavy emphasis on the alphabetic system, drill and repetition to compensate for short-term verbal memory deficits, and multisensory methods to promote non language mental representations

FUNCTIONAL DESIGN OF THE ICT TOOL

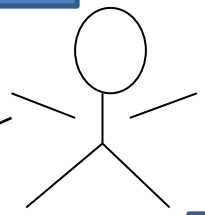


Proposed Architecture



LEARNER

The ICT Tool available on the server

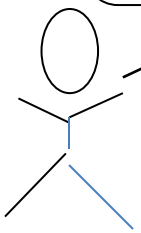


Teacher

Client computer that will accessed by the teacher and learner

- Learner use the ICT tool in their learning
- Use the ICT tool to perform periodic assessment
- Use ICT tool for exams

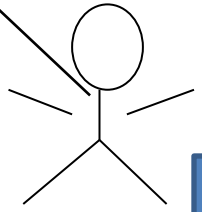
- Parent monitors the learner progress
- Feels emotionally and psychologically accommodated



Parents

- Teacher will be trained to use ICT tool.
- Will use the ICT tool to instruct the learners
- Will test and evaluate learners using the tool

- Technologist will offer user support
- Will train the teachers and learners to use the tool.



Technologist

METHODOLOGY

Data Collection

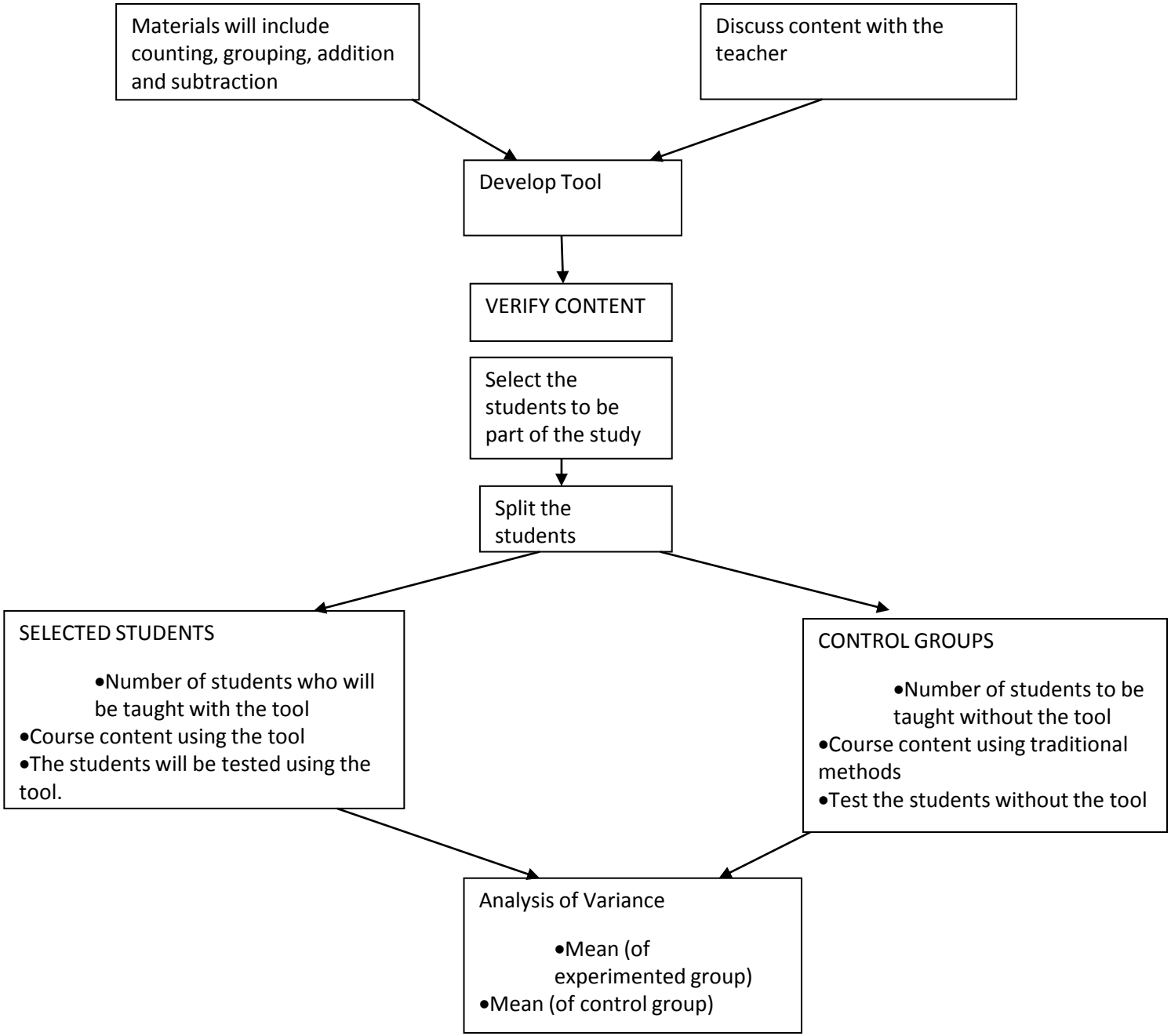
- Study will combine qualitative and quantitative methods

Qualitative Methods

Questionnaire, recordings, interviews and observations

Quantitative Method:

The prototype will be deployed in school with dyslexic children, the information gathered will analyzed using statistical methods


Materials will include counting, grouping, addition and subtraction
Discuss content with the teacher
Develop Tool
VERIFY CONTENT
Select the students to be part of the study
Split the students
SELECTED STUDENTS
•Number of students who will be taught with the tool
•Course content using the tool
•The students will be tested using the tool.
CONTROL GROUPS
•Number of students to be taught without the tool
•Course content using traditional methods
•Test the students without the tool
Analysis of Variance
•Mean (of experimented group)
•Mean (of control group)

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