



Comparison between Visually Impaired and Low Vision students in Application of Technology

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ABSTRACT

Technology can be a great tool for providing access to information for people with visual impairments. Whether it is through speech, Braille, or large print output, the use of technology gives a person with a visual impairment access to information at approximately the same time as a person who is sighted. The purpose of this study is to find out the level of acquisition of visually impaired and low vision students in Application of Technology who are studying in Inclusive Education at Secondary Stage. The study adopted survey method with 70 visually impaired and 50 low vision students studying in the Inclusive Education programme. The results revealed that while comparing visually impaired and low vision in Application of Technology, visually impaired students use tape recorder for learning more than low vision students. Whereas, in computer operation, low vision students were using more than visually impaired students.

KEYWORDS

Visual impairment, Inclusive Education, Technology

Introduction

Technology can be a great tool for providing access to information for people with visual impairments. The present study entitled "Application of Technology by Visually Impaired Students" is about the level of acquisition of technology by the visually impaired students studying in Inclusive Schools.

Inclusive Education: Meaning and Concept

The adoption of inclusive education could be in realization of the importance of the Universal Declaration of Human Right (United Nations, 1948) which stipulated that education is a fundamental human right. The Convention on the Rights of the Child (United Nations, 1989) also declared that children with or without disabilities have the same right to educational opportunities.

Visual impairment

Vision impairment, like other areas of disability, exists on a continuum. A loss of vision may range from total blindness (i.e., no reaction to light) to low vision (which may be corrected by glasses). For educational purposes, students are considered to be vision impaired when their degree of vision is assessed as causing, or having the potential to cause, a significant hindrance to their educational progress in a classroom setting.

Whether it is through speech, Braille, or large print output, the use of technology gives a person with a visual impairment access to information at approximately the same time as a person who is sighted.

Technology

Technology has enabled blind persons to access information that was otherwise unobtainable. With the onslaught of e-mail, telecommunications, CD-ROM, and the Internet, the availability of assertive technology has grown exponentially. Devices such as Braille displays, Braille printers, Braille note takers, and speech synthesizers facilitate blind users to benefit themselves, to manipulate information otherwise only available to sighted persons (D'Andrea & Barnicle, 1997).

Technology enhances communication and learning, and expands the world of blind and visually impaired persons in many ways. Instruction in this area should be a continuous process in education that is consistent with the advancements in the technological world. Wolffe (1999) suggest that students' fields of interest should be linked with their instructional goals when developing technology skills. Technology is now allowing for more job

opportunities for visually impaired persons in more diverse fields than ever before (Wolffe, 1999).

Purpose

The purpose of this study is to find out the level of acquisition of visually impaired and low vision students in Application of Technology who are studying in Inclusive Education at Secondary Stage.

Objectives

The objectives of the study were to:

1. Study the level of acquisition of Application of Technology among visually impaired students.
2. Study the level of acquisition of Application of Technology among low vision students.
3. To compare visually impaired and low vision students in Application of Technology.

Site Description

The study was conducted in Higher Secondary schools implementing Inclusive Programme in four districts of Tamil Nadu which include Kancheepuram, Cuddalore, Thiruvanamalai and Coimbatore.

Selection of the Sample

The present study was descriptive in nature. The sample comprised of 70 blind students and 50 low vision students, both boys and girls belonging to class IX to XII. Purposive sampling technique was used to select the sample.

Tools Selected for the Study

The investigator developed tools to assess the application of Technology. The below mentioned are the details of the tools: Expanded Core Curricular Skills assessment tool developed by Wendy Sapp & Iowa ECC Resource Team (2006) and revised by Karen Blankenship (2009) has been adapted for the study suiting to the Indian Context. Some of the skills have been changed and some have been either modified or removed.

Development of the tool

There are three sub skills. They include: i) Use of Tape recorder for learning, ii) Keyboarding skills and iii) Computer operation. These skills were assessed by asking simple questions like the parts of the computer system and also by providing either computer or laptop to perform a certain basic functions.

Application of Technology



Plate 1: Keyboard use with screen reader software
Source: www.causes.com

Assistive technology helps students who are visually impaired increase their access to the general curriculum and improve their academic performance. The applications of assistive technology by the visually impaired students are:

a. Use of Tape Recorder for Learning

A recording device allows a student to record an instructional lesson for studying, write assignments and for note taking purposes. Some of the same devices that students use to listen to recorded texts such as tape recorders, CD players, MP3 players, iPads and iPhones.

The skill of using tape recorder for listening to study material, recording and for note taking purpose independently was assessed by giving a tape recorder to students.

b. Keyboarding Skills

First step in becoming proficient in technology and computer skills is to learn how to type on the QWERTY keyboard. Learning tactile keyboarding skills (typing without looking at the keys) will not only improve the student's speed and accuracy but will also minimize the need for the student to shift their gaze between the source. Keyboarding skill was assessed by seeing students fingering in identifying and typing a document independently.

c. Computer Operation

By giving laptop to students, operating computer independently, typing documents for material preparation without errors were assessed by use of screen reader. A passage in English was given to type for 5 minutes. Errors were calculated and scored accordingly.

Results and Findings

Finding 1: Application of Technology among visually impaired Students

Application of Technology constitutes of three major areas and scores of the skills are given in the following table.

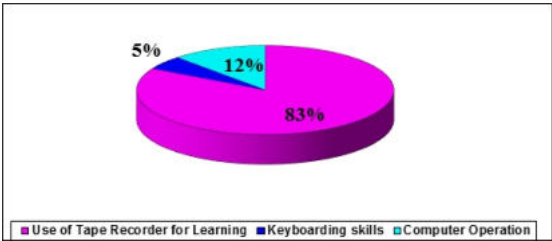
Table 1: Types of Technology used among Visually Impaired Students

S. No.	Skills	Maximum Score Assigned	Average Score Obtained	Level of Skill (%)
I	Application of Technology			
1	Use of Tape Recorder for Learning	10	6.07	83
2	Keyboarding skills	10	0.39	5
3	Computer Operation	10	0.94	12

The study results regarding Application of Technology, 83% used tape recorder for learning, only 5% of students had the knowledge of keyboarding skills using appropriate fingers for touch and 12% could operate computer independently.

Graph 1:

Pie graph showing the components of Application of Technology and Level of Acquisition



Finding 2: Application of Technology among Low Vision Students

Application of Technology constitutes of three major areas and scores of the skills are given in the following table.

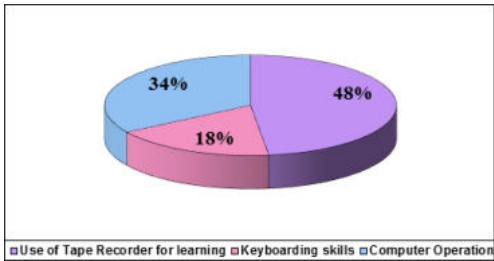
Table 2: Types of Technology used among Low Vision Students

S. No.	Skills	Maximum Score Assigned	Average Score Obtained	Level of Skill (%)
I	Application of Technology			
1	Use of Tape Recorder for Learning	10	3.32	48
2	Keyboarding skills	10	1.22	18
3	Computer Operation	10	2.26	34

Pertaining to the acquisition of Application of Technology, 48% of low vision students used tape recorder for learning. Whereas only 18% of students had the knowledge of keyboarding and 34% could operate computer independently.

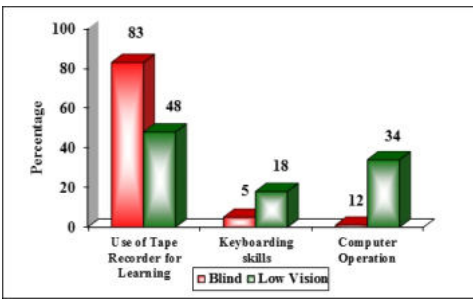
Graph 2:

Pie graph showing the components of Application of Technology and Level of Acquisition



Graph 3:

Comparison between visually impaired and low vision students in Application of Technology



While comparing visually impaired and low vision in Application of Technology, visually impaired students use tape recorder for learning more than low vision students. Whereas, in computer operation, low vision students were using more than visually impaired students.

Conclusion

The results revealed that while comparing visually impaired and low vision in Application of Technology, visually impaired students use tape recorder for learning more than low vision students. Whereas, in computer operation, low vision students were using

more than visually impaired students. Use of computer has to be practiced to improve the performance of students' in academics and also have to use the latest technology other than computer and tape recorder.

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