

# **Research Title and Authors**

**The Use of Assistive Technology in Facilitating Inclusive Learning  
for Students with Disabilities in Higher Education Institutions in  
Tanzania**

**By**

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# INTRODUCTION

- Globally, it is estimated that about 1 billion of its population are PWDs, where 80% are from developing countries (World Bank, 2020).
- In 2012, Tanzania had 45 million people of whom 3.6 million equivalents to 8% were PWDs
- People with and without disabilities have the right to education for their development and prosperity
- Due to the increase in the development and use of technology in learning, assistive technology (AT) has become of great importance in promoting inclusive learning for students with disabilities (SWDs) in the universities
- AT refers to the technologies (devices or services) used to compensate for PWDs' functional limitations, independent living and realization of their full potential.

# INTRODUCTION...

- AT is divided into low technologies, which do not use programming, such as Perkins Braille, magnifiers, pencil holding devices etc, and high technologies, which use programming, such as computers.

# **General Benefits of Assistive Technologies**

Literature have revealed that:

- ATs provide instant feedback for improved learning
- AT improves academic performance and language development
- ATs promote inclusion and decrease stigma
- AT increases SWDs' independent in getting lessons, access to library services, read, write, organize their activities, and works

## **Knowledge on AT in Tanzania**

- it was not until 2011 that persons with visual impairments began to receive ICT training in Tanzania.
- The Tanzania League of the Blind (TLB), in collaboration with the Open University of Tanzania (OUT), the Tanzania Education Authority (TEA), Sight Savers International (SST), and Freedom Electronics (Samsung Tanzania) became the pioneers in imparting practical knowledge on ICT to persons with visual impairments in Tanzania.
- They started offering training ICT skills to teachers, social workers and students with visual impairments (Chawala, 2012).

# STATEMENT OF THE PROBLEM

- Despite the fact that many studies have been conducted on AT in Tanzania, most of them have focused on the relevance of AT, accessibility and challenges (Eligi & Mwantimwa, 2017; Kisanga & Kisanga, 2020; Kamaghe, et al, 2020; Ngonyani & Mnyanyi,2021).
- However, there is limited knowledge, skills and attitude level on how AT can facilitate learning of SWDs in inclusive classrooms in Tanzania higher education institutions (HEIs).

## **Purpose and Objectives of the study**

**Purpose:** examine the use of AT in facilitating inclusive learning for SWDs in HEIs in Tanzania.

### **Objectives:**

- to explore the knowledge level of AT among SWDs
- to assess the extent to which SWDs apply AT to facilitate their learning in an inclusive classrooms

# Research Questions

Three research questions guided the study:

- What computerized assistive technology software programmes and devices do you use during learning in an inclusive classroom?
- How did you learn the use of AT you have identified?
- In which learning activities do you use assistive technologies to accomplish them?
- How often do you use assistive technology in learning?



# RESEARCH METHODS AND DESIGN

- The study was descriptive in nature and used a case study design.
- The study was conducted in two (one public and one private) HEIs
- Participants included 14 (seven female and seven male) SWDs and one male transcriber who were purposeful sampled
- Of the 14 SWDs, five had visual impairments, three had physical impairments, three had low vision, while three had hearing impairment.
- Data were collected using semi-structured interview guides
- Generated data were analysed thematically

# RESULTS

## **Knowledge on computerized AT Software Programmes and Devices**

- SWDs mentioned smartphones, laptops, Braille embossers, scanners, NVDA, JAWS, magnification software, CCTV, Digital voice recorders, book turners, Perkins Brailier, hearing Aids as useful devices and software in learning in inclusive classroom
- All SWDs indicated that no training programmes were set for SWDs to learn AT before commencing the full university programmes
- SWDs did not possess their own computers
- Among the available computers in the studied HEIs, few of them were installed with NVDA, JAWS and magnification software

## **Knowledge on computerized AT Software Programmes and Devices...**

One third year male SWVI from IST.2 said..."We are 17 students while there are only three desktop computers installed with JAWS. One computer is shared by at least five students. Yet, there is no ICT specialist to teach us computer skills and assistive technology skills. We are unable to use these computers without the help of sighted friends".

## **Accomplished classroom activities Using AT**

- It was revealed by all participants that AT was applied in various learning activities such as doing assignments, searching information from the internet, reading books that are in soft copy, recording lectures, and writing examinations

## **Accomplished classroom activities Using AT...**

One second year female SWVI from IST.2 said... “I really prefer using the computer with the screen reader software because it aids me in the typing of my assignments; conducting research work; and when I want to look for some information from the internet. It also helps me to read the books that are in soft copy very easily and recording lecture sessions. I prefer the digital recorder to pick information at lecture rooms every bit of detail, listen to and make my own notes out it. The computer screen reader that is the JAWS enables me to have access to the computer and then the internet and get everything through audio which helps me to do my presentation and assignment. I use the CCTV because its enlargers my printed works. Assistive technology makes learning really easy”.

## **Accomplished classroom activities Using AT...**

One third year female SWVI from IST.1 also added...“We would prefer to write examinations and assignments using laptop computers installed with screen reading software (such as JAWS, NVDA) or magnifiers. They increase our independence and flexibility while typing, editing, saving, reading, and retrieving written work as opposed to typewriters. Manual or electric typewriters do not allow us to edit or retrieve what we write. They are too old and keep on breaking.”

## **The Extent to which SWDs use Assistive Technology in Learning**

Participants from IST.2 had more experience to share regarding the use of AT for learning in inclusive classes in HEIs than those from IST.1. It was reported that the extent to which SWDs applied AT in learning depended on several factors including availability of instructors and technicians trained on AT; availability of appropriate AT facilities for SWDs; knowledge of AT among SWDs; and attitude of a particular learning institution towards promoting AT for SWDs.

## **The Extent to which SWDs use Assistive Technology in Learning...**

A Second year female SWVI from IST. 2. seemed to be more excited narrated... “We have computers which have JAWS installed on them. Our resource centre has wifi network to assist us access internet. We also have the personnel in terms of the resource persons and those who assist the resource persons to make sure that the materials are kept in a format that we can access. Although the material available are not sufficient to carter for our needs, we can proudly say that assistive technology makes us included in the learning community”.



## **The Extent to which SWDs use Assistive Technology in Learning...**

One male transcriber from IST. 1 added that... “there is no way a person with visual impairment can escape from using a computer. Generally, SWDs have to cope with various technological changes taking place in the world. They have to shift from crude technologies such as typewriters to using computers. We as technicians we always encourage them and push them forward towards assistive technology orientation. We are making efforts to engage lecturers so that they understand this technology and incorporate it in their class sessions”.

## **The Extent to which SWDs use Assistive Technology in Learning...**

- Literature has also confirmed that Assistive technology helps to facilitate the participation and enjoyment in the classroom for students with disabilities.
- Students are able to achieve success in learning and obtain more autonomy in the learning process through assistive technology.

## **DISCUSSION**

- Whereas Maurya (2017) maintained that lecturers can provide better learning environment to SWDs by using AT, study findings have revealed that lecturers and SWDs in studied HEIs had limited knowledge on use AT. Consequently, the lacked of skills on AT among lecturers and students remains to be the prime barrier for effective usage and implementation of AT in HEIs.
- Whereas SWDs have shown positive attitude and great commitment to applying AT their studies, kisanga and kisanga (2020) noted absence of qualified AT specialists and limited training on AT to SWDs

## **CONCLUSION AND RECOMMENDATIONS**

- Based on findings, we conclude that appropriate AT is a potent tool that not only facilitates learning in inclusive classrooms but also increases student's autonomy and improves their inclusion, participation and engagement in learning
- We recommend that: SWDs should be trained on AT prior to commencing their higher education studies in HEIs; SWDs should receive regular training to update their knowledge on AT usage; all instructors should attend in-service training once at the beginning of the semester to learn about new technology and HEIs should allocate enough budget for hiring AT professionals and conducting trainings to SWDs and lecturers

# **GIVING THANKS**

Thank You Very Much For Listening

“Asanteni”