# Chapter 18
# Innovations and Use of Assistive Technologies in Libraries of Institutions of Higher Learning

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## ABSTRACT

*Access to information for all is a major component of library and information science in this digital era. Libraries in institutions of higher learning are mandated to provide information to all the patrons regardless of their ability to deal with the issue of inclusivity and social justice. A study on the innovations was conducted specifically for patrons with special needs in academic libraries. Different assistive technological types of equipment were outlined as well as the challenges encountered when using the assistive technology tools and applications. The observation was done at one of the academic libraries, and it was discovered that the library has a disability center that is used by patrons with special needs and manned by a trained librarian. The authors recommend the introduction of such services in all the academic libraries to cater to patrons with special needs.*

## INTRODUCTION

Inclusivity is now regarded highly in institutions of higher learning since libraries are mandated to provide useful information to all the patrons regardless of ability. Clients with different abilities are being enrolled for different programmes in educational institutions including those with low visual impairments, totally blindness, physical impairments, and hearing impairments. These patrons should be given equal opportunities to learn and access information resources in spite of their special needs. Libraries therefore are required to embrace the latest innovations in the form of assistive technologies to enhance

library services to different clientele in institutions of higher learning. This chapter outlines innovations and use of assistive technologies in institutions of higher learning to ensure patrons with various needs have met their academic endeavours just like their other counterparts. The chapter sought to answer the following objectives: to outline different assistive technological equipment that are found in academic libraries, assess the effectiveness of assistive technology tools used in libraries in institutions of higher learning, and discuss the opportunities and challenges of using assistive technologies in libraries of institutions of higher learning.

## BACKGROUND TO THE STUDY

The concept of inclusivity is understood as a way of minimizing or eliminating of barriers to students who participate in traditional settings (i.e., schools, homes, communities, libraries and workplaces) and the maximization of resources to support learning and participation in communities. (Mpofu 2004). In institutions of Higher learning and Library settings, inclusivity results in students' with various needs being able to partake courses that needs practical, such as, mathematics, sciences, and statistics. Innovations such as the development of assistive technologies empower people with special to understand and enhance learning and knowledge skills that are required in education and their areas of study. According to (Mpofu 2004) In Zimbabwe, there is no specific legislation of inclusive education although government policy issues are consistent with the intent of inclusive education. As such, innovations in technology have seen students with specific needs being embraced and considered in institutions of higher learning. Such students with unique or special needs, such as, those with low vision, totally blindness and those who are physically challenged are now able to partake science courses with the aid of assistive technological Innovations that will be outlined in the chapter. Assistive technology seeks to enhance the liberty to independent learning which this chapter seeks to evaluate the innovations in minimizing the barrier to effective teaching and learning of students with special needs in institutions of higher learning. With this background the writers seek to observe the use of assistive technological tools in narrowing the gap between the traditional teaching and learning concept and the use of assistive technology.

## DEFINITION OF ASSISTIVE TECHNOLOGIES

Assistive technology is a set of devices intended to help people who have disabilities (Goddard 2004, Lloyd, Quist, and Wendt 2011, Dell, Newton & Petroff 2012, Sunaman & Kumar 2014, Tripathi & Shukla 2014, Green 2018). They are also known as adaptive technologies (American Library Association 2021) and these are electronic solutions that help people with special needs to live and learn independently. These tools are used to perform functions that might be difficult or impossible (University of Washington 2021). Many assistive devices are built using artificial intelligence (AI) technologies, including real-time speech-to-text transcription and visual recognition tools to overcome barriers associated with reading print, using computer workstations, taking notes and communicating with others both in the print and electronic environment (Brophy & Craven 2007). These include mobile devices such as walkers and wheelchairs, and software, hardware and peripheral devices that are used by people with special needs to access computers and other information technologies. People with limited hand function can use a keyboard with large keys or a special mouse in order to operate a computer, while those who are blind

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