

Enablers and disablers to academic success of students with visual impairment: A 10-year literature disclosure, 2007–2017

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Abstract

Within the Sustainable Development Goal (SDG) and its 17 targets is a strong emphasis on the education of learners with disability. Whereas there have been massive improvements at lower levels regarding education of the marginalised, a lot more work remains undone at tertiary education level. In this discourse, we explore literature to reveal enablers and disablers to academic success of students with visual impairments (SwVI) at higher education level in the past 10 years in 16 countries dotted across six habitable continents. Emerging from the study is a host of disablers such as (1) negative attitudes, (2) absence of inclusive education policy, (3) inaccessible learning environment and learning materials, (4) exclusive pedagogy, and (5) limited orientation and mobility. Amidst the disabling environment, a positive attitude, self-advocacy, and innovativeness stood out as key enablers to academic success by SwVI. The findings contribute to the realisation of the SDG agenda through advocacy on inclusive education policies and practices.

Keywords

Disablers, enablers, higher education, inclusive education, visual impairment

Introduction

This article is part of the principal researcher's doctoral thesis. In this discourse, we review literature on enablers and disablers to academic success of students with visual impairments (VIs) linked to 16 countries, namely, Australia, Bangladesh, Botswana, Brazil, Canada, Greece, Iceland, Lesotho, Rwanda, South Africa, Tanzania, Uganda, United Kingdom, United States, Zambia, and Zimbabwe, spread across all the six human-habitable continents. We only excluded Antarctica continent as nothing was reported related to the subject at hand. The article is segmented in several units, namely, theoretical underpinnings, procedure followed, databases visited, findings and discussion, conclusion, and recommendations.

Theoretical underpinnings

This section provides a synopsis of the most discussed theoretical model within the disability field in recent years. Particularly, it highlights the social model of disability. It discusses the way in which the social model de-emphasised biology and situates disability within societal structures.

Social model

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The social model is the term used by proponents opposed to the medical model way of viewing disability (Roulstone, Thomas, & Watson, 2012). Under the social model, it is argued that the medical model severely and unnecessarily restricts the roles that disabled people can play in life. Treating disabled people according to the medical models makes them dependent on certain (non-disabled) people and separates them from the rest of society.

The social model of disability is pivotal to understanding disability. The model acknowledges that it is often social barriers, such as prejudice and stereotypes; the way things are organised and run; and/or poor or no access to information, buildings, and transport, which cause disability, rather than the impairments themselves. The main needs of a person with an impairment are the same as anyone else's: life, love, education, employment, having control and choice in one's life, and access to adequate services (including medical and rehabilitation when necessary). The challenge of disability centres on how society reacts (proactively and reactively) to the individual and his or her impairment and in physical and social environments which are designed (by non-disabled people) to meet the needs of non-disabled people only. Under the social model, a person who has an impairment is disabled not only because of the impairment but also because of the attitudes of society and poorly constructed physical and social environments.

Overall, the social model contributed enormously to disability dialogue and exposed oppressive ideology of the past. However, in the recent past, the social model has come under scrutiny from challengers. For instance, Bury (2000) alludes to the fact that, despite the most successful efforts to remove societal obstacles from the environment, some traces, limitations, and certain realities of a biologically informed disability would still remain.

Procedures for the literature review

This study was delimited to the following databases accessible to the researcher, namely, the Education Resources Information Center (ERIC), Directory of Open Access Resources (OpenDOAR); Education Index, University Press, JSTOR, SAGE Knowledge, SAGE Online Journals, University of California Press, EBSCO, Emerald Management, University of Chicago Journals, Google search engine, Palgrave Macmillan Journals, Wiley Library, University of Zambia Repository, among others. The process for literature search lasted for 6 months.

The literature review search in each of the listed databases above was conducted using key terms drawn from the topic, first searched using Boolean Operators: AND and “ ” as single entities and then in combination with other entities. The literature search was limited to journals published in the past 10 years, out of which 85% of the literature identified and used and had been published in the past 5 years (2013–2017). After an initial literature search across various databases, specific articles were purposively sampled based on their relevance and relatedness to the study at hand. The sampled journals were then studied in detail using an in-depth literature search guide. Consequently, the literature search yielded 33 studies related to the research theme at hand.

Prevalence of learners with disability at tertiary-level, developed countries

In developed countries, such as United States and Canada, persons with reported disabilities represented a small segment of the general population at post-secondary education level, averaging between 1.5% and 11% across North America (Harrison & Wolforth, 2012; MacKean, 2011). Similarly, the number of disabled students attending Australian universities had increased over the past 25 years, rising from 1.94% of students in 1996 to 5.15% in 2013 (Department of Education & Training, 2012).

Innovations in learning and assistive technologies, as well as provisions in disability supports, were viewed as central factors contributing to the increase in enrolment and graduation rates from colleges for individuals with disabilities (Harrison & Wolforth, 2012; MacKean, 2011). In the context of developing countries, such as Zambia, such statistics of persons with disabilities engaged in studies at tertiary level are scarce and hard to find as investment in research especially at tertiary education level is poorly developed. This then provides an opportunity for further research to identify learners with disabilities at tertiary level.

Experiences of learners with disabilities in learning institutions, developed countries

At present, a number of studies on the education of learners with disabilities in higher education (HE) have been conducted, including the study by Fichten et al. (2009). In their study, Fichten et al. (2009) focused on disabilities and e-learning problems and solutions as reported by 223 students with disabilities, 58 campus disability service providers, 28 professors, and 33 e-learning professionals from Canadian colleges and universities. All four groups indicated problems with accessibility of websites and course learning management systems, accessibility of digital audio and video, inflexible time limits built into online exams, PowerPoint projection during lectures, course materials in PDF, and lack of needed adaptive technologies. Students also mentioned technical difficulties using e-learning, connecting to websites, problems downloading and opening files, web pages that would not load, video clips taking too long to download, poor use of e-learning by professors, and their own lack of knowledge working with e-learning (Fichten et al., 2009).

Given the presence of inclusive policies and information and communication technology (ICT) infrastructure in developed countries as advanced by Fichten et al. (2009), Heindel (2014) explored experiences of HE students with disabilities in the United States using a descriptive phenomenological approach. The study focused on the quality of the learning experiences and learner satisfaction of students with disabilities on the distance learning mode. The findings suggest that more training for instructors is needed on how to work with students with disabilities. The Students with Disabilities Services office and instructors needed to collaborate and work together, rather than separately, in a proactive, rather than reactive, manner, to better serve the needs of students with disabilities. Furthermore, there was need to empower students with disabilities to voice out their concerns and to pave way for improved quality of online learning environment for themselves.

Heindel's (2014) study focused on various disability categories which made the findings too general and not specific to students with VIs. In addition, the study was based on descriptive phenomenology approach with a slant towards bracketing subjective views of the researcher. Hence, findings of this study could not be interpreted further leaving gaps for further interrogation. Furthermore, the study restricted itself to open and distance e-learning mode of study, a feature synonymous to developed countries.

Butler, Holloway, Marriott, and Goncu (2017) centred their study on understanding the graphical challenges faced by vision-impaired students in Australian universities. They observed that information graphics such as plots, maps, plans, charts, tables, and diagrams formed an integral part of the student learning experience in many disciplines. Conversely, for vision-impaired students, accessing such graphical materials pose a challenge. The findings of their study found that difficulty in accessing graphical materials was a barrier to many vision-impaired students and that there were systemic problems with current processes for accessible graphics provision.

In response to the challenge experienced by SwVI to access graphical information, a number of technologies have been developed, although not yet in extensive use. Such technologies include

sonification (Brown & Brewster, 2003), haptic feedback (Darrah, 2013), integrated e-book delivery on touchscreen (Goncu & Marriott, 2015), and three-dimensional (3D)-printed tactile models (Grice, Christian, Nota, & Greenfield, 2015; Kolitsky, 2014).

Alves, Monteiro, Rabello, Gasparetto, and Carvalho (2009) considered the application of assistive technology, especially information technology (IT) in the education of blind and low-vision students from the perceptions of teachers in São Paulo, Brazil. The findings show that there are differences in the specificities and applicability of assistive technology for blind and low-vision students, for whom specific computer programmes are important. The main reason for not using IT was the lack of orientation. In addition, teachers indicated the need for infrastructure and pedagogical support (Alves et al., 2009).

However, knowledge of cyber threats by SwVI could account for low use of Internet technology as argued by Inan, Namin, Pogrund, and Jones (2016). According to Inan et al. (2016), SwVI who were more knowledgeable and skilled about cybersecurity inclined to be more concerned about it and to use the Internet less than those who were less knowledgeable about cybersecurity. Therefore, cybersecurity concerns could lead SwVI to decrease their Internet use, which could widen the digital divide.

Vlachou and Papananou's (2014) findings were echoed by Whitburn's (2014) study of the experiences of students with visual impairments (SwVI) in Australia. Whitburn (2014) conducted a qualitative study on five SwVI. Whitburn was an insider in the field of disability and had received his schooling in a similar educational setting as the participants. His findings revealed unfair treatment of the participants in mainstream schools that appeared to have perpetuated their exclusion.

In research exploring the individual perceptions, experiences, and preferences of disabled students regarding special or mainstream schools, Shah (2007) consulted 30 students with disabilities, aged 13 and 25 years, in the United Kingdom. The findings revealed that mainstream schools had not embraced full inclusion and continued to disempower disabled students with exclusionary procedures and practices. The study established that despite progressions in inclusion-related legislation, a great deal of change was further needed within mainstream schools before disabled students could experience inclusion (Shah, 2007).

Related to Shah's (2007) study, Thurston (2014) explored the lived experiences of two albinism students in high school in the United Kingdom. The study applied an interpretative phenomenological analysis to examine and understand ways in which students with low-vision albinism experienced inclusion. Emerging from the study findings were two main themes, namely, (1) experiencing low vision in school and (2) experiencing additional support in school. A negative cycle of inclusion was identified based on the students' internalised feelings of difference.

While Thurston (2014) delved in the lived experiences of students with albinism, Hewett et al. (2017) focused on developing an inclusive learning environment for students with VI in HE. The study applied a longitudinal qualitative approach of the experiences of 32 young people with VI in the United Kingdom. Participants reported that their HE institution made some adjustments to enable them to access their course and a lack of anticipatory adjustments created barriers. The most common solution for this barrier was to provide deadline extensions, often resulting in additional pressure on university staff who highlighted limited specialist knowledge and resources within their institutions to enable accommodations for students with VI.

In another related research study, Emily et al. (2012) document experiences of post-secondary students with disabilities. In this study, ways in which 'disabled' post-secondary students make meaning of their experiences in post-secondary education was explored. Eight participants (self-identified disabled post-secondary students) were recruited from post-secondary institutions in

Calgary, Alberta within Canada. Findings demonstrated a continued need for critical examination of HE policy and its capacity to address differences in ability.

In addition, Wendy, Kraglund-Gauthier David, and Young Elizabeth (2014) documented lived experiences of learners with disabilities in post-secondary institutions in Canada. The study utilised a qualitative approach to elicit data from participants. Findings from their study revealed how important it is for students to feel comfortable and confident in disclosing their disabilities and, importantly, to communicate with their course instructors about what was required for their academic success. The study also provided insight into implications for post-secondary educators' pedagogical practices (Wendy et al., 2014).

Polushin (2015) focused on the inclusive andragogy in distance education using a phenomenological approach. The purpose of this study was to understand inclusive andragogy in distance education through the lived experiences of students and stakeholders involved in online teaching at a Canadian tertiary institution. Findings suggest that inclusive andragogy needed a systemic approach to address learner and cultural variability. Specifically, systemic, curricular, technological, and social accessibility supported by awareness training and interdisciplinary team knowledge and collaboration emerged as essential themes of the participants' lived experiences.

According to Khokhar (2007), distance education is regarded as a flexible and appropriately methodology for delivering inclusive education. Given the advent of technology, it becomes possible to widen access to education among persons with disabilities through the flexible distance learning approach. Perhaps, flexibility could be seen through learners being able to access study materials from their homes, which is viewed as the safest and least expensive environment. This could be incorporated with occasional attendance at local study centres, a form of blended learning (Khokhar, 2007).

Experiences of learners with disabilities in learning institutions, developing countries

Lourens (2015), in his thesis, focused on the 'lived experiences of HE for students with a VI'. A phenomenological approach was applied targeting two universities in Western Cape, South Africa. The study findings described the challenges related to the transition from school. In addition, participants discussed complex social interactions with non-disabled peers, in which the latter reportedly offered help and avoided or stared at participants, leaving them feeling 'not seen'. Furthermore, within the learning environment, the participants were sometimes confronted with unwilling lecturers, a lack of communication among important role-players, late course material, and/or headaches and muscle tension from the effort of reading with limited sight. The students recounted that they commonly self-advocated and took the responsibility upon themselves to get special accommodations (Lourens, 2015).

In general, these findings showed that the experiences of students did not seem to differ according to the institution they attended. Their visual category and/or secondary schooling seemed to have played a more significant role where their experiences differed. In addition to the typical demands of university studies, the participants also took a lot of responsibility upon themselves to manage their studies and their physical and social environments. Participants seemed resilient and innovative, yet the effort sometimes drained their energy and left them frustrated. Despite valuable steps towards inclusion, these vision-impaired students were still not fully included on tertiary campuses (Lourens, 2015).

Related to Lourens' (2015) study above is Maguvhe (2015), pitched within the South African context, who focused on factors that limited the participation of the vision-impaired learners in mathematics and science education. The study revealed that teacher motivation and mentorship in

mathematics and science methodologies and the use of tools for learner empowerment were lacking. It further revealed that teachers lacked the requisite skills in special education to harness learner potential in mathematics and science. This situation necessitates government action in teacher training and development.

Mutanga and Walker (2017) explored the academic lives of students with disabilities at two South African universities – University of the Free State and University of Venda, from the lecturers' perspectives. A qualitative approach was used to understand the lives of students with disabilities better. The findings show that although most disability literature report students with disabilities blaming lecturers for their failure to advance their needs, this study highlights that the education system needs to be supportive to lecturers for the inclusive agenda to be achieved. Furthermore, it is argued that a more comprehensive approach towards a national disability policy in HE involving many stakeholders be adopted for a broader understanding of disability, to engage with the complex ways in which inequalities emerge and are sustained.

Similar to Lourens (2015), Maguvhe (2015), and Mutanga and Walker (2017), Ntombela and Soobrayen (2013) contextualised their study within South Africa particularly at the University of KwaZulu-Natal. In their study, Ntombela and Soobrayen (2013) explored the nature of access challenges faced by students with visual disabilities at the Edgewood campus. The findings showed that although access had improved for students with disabilities in this institution, there are still systemic barriers that limit the participation of students with visual disabilities in the academic programmes. The study concluded that improved access requires partnership between Government and HE institutions to monitor and support systemic transformation.

In general, Gronlund, Lim, and Larsson (2010) observed that in developing countries there existed many obstacles in the process of implementing inclusive education. In particular, Gronlund et al. (2010) focused on effective use of assistive technologies for inclusive education in developing countries. In conducting this study, an in-depth case study of two developing countries, Bangladesh and Tanzania, was reviewed. The findings showed that obstacles to effective use of assistive technologies for inclusive education came from three different levels – school, national, and network. Because assistive technologies were only part of the equation for a country to achieve inclusive education, a high-level national perspective was required and other related factors also need to be considered.

Mosia and Phasha (2017), in a quest to shed light on access to curriculum for students with disabilities at HE institutions, focused on the National University of Lesotho. Findings revealed inconsistencies between the institution's admission policy of non-discrimination according to disability status and its practices. To this effect, the study that recommends a clear policy concerning the support of students with disabilities is developed. The policy would guide decisions on how disability data should be used, define roles that different university departments must play in facilitating access to curricula for all students, influence suitable development of teaching and learning resources, stimulate research on success and completion rates of students with disabilities, and mandate restructuring of programmes that are currently inaccessible to students with disabilities.

Chhabra, Srivastava, and Srivastava (2010) carried out their study in Botswana, whose research purpose was to identify the attitudes and concerns of teachers towards the inclusion of students with disabilities in the general classroom. The findings indicate that teachers in Botswana have somewhat negative attitudes with some concerns about inclusive education. The results also reveal that many regular teachers feel unprepared and fearful to work with learners with disabilities in regular classes and so display frustration, anger, and negative attitudes towards inclusive education because they believe that it could lead to lower academic standards (Chhabra et al., 2010).

Linked to distance education is yet another study conducted by Kaputa (2013), 'Making open and distance learning inclusive: The Zimbabwe Open University's (ZOU) experiences of people with disabilities'. According to Kaputa (2013), only less than 1% of learners with disabilities were present at ZOU. This is in sharp contrast with the World Health Organization who argues that an estimated 15.6% of the world population was made up of people with disabilities. Whereas ZOU was accommodating learners with disabilities, however, persons with disabilities faced challenges accessing instructional materials especially those with visual and hearing impairments.

In a related study to Kaputa's (2013), Mafa (2012) stresses that in Zimbabwe, inclusion had actively been on the national agenda since 1994. Nevertheless, there were still a lot of scepticism and ambivalence towards the implementation of inclusion in Zimbabwe, as in a number of sub-Saharan African countries. Findings from his study point to unavailability of suitable learning supporting facilities, teachers' limited skills and lack of support from instructional supervisors (Mafa, 2012).

In addition to Kaputa (2013) and Mafa (2012), Chataika (2011) explored lived experiences of students with disabilities in HE in Zimbabwe. The findings indicated that students with disabilities continue to experience attitudinal, physical, and institutional barriers. In addition, the study revealed that students developed coping mechanisms that enabled them reach their educational goals. A positive attitude and self-advocacy skills were regarded as the most important factors in determining the success of students with disabilities in HE. Similarly, self-belief was viewed as a conduit to success. Nevertheless, Kaputa (2013) appeals for improved policy and practice to ensure meaningful disability inclusion in education, without students with disabilities becoming 'superheroes' who spend most of their time trying to overcome a countless of disablers that are common in most learning institutions.

Emong and Eron (2016) focused on disability inclusion in HE in Uganda. The study reviewed that despite Uganda's robust disability legal and policy framework on education, there is evidence of exclusion and discrimination of students with disabilities in the HE institutions. The findings showed that there existed discrimination and exclusion tendencies in matters related to admissions, access to lectures, assessment and examinations, access to library services, halls of residence, and other disability support services. To this end, the study concluded that institutional policies and guidelines on support services for students with disabilities and special needs in HE be developed, data on students with disabilities collected to help planning, and collaboration between Disabled People's Organisations (DPOs) strengthened as well (Emong & Eron, 2016).

Similar to Emong and Eron's (2016) study located within the Eastern African context, particularly Uganda, Nasiforo (2015) centred her study on academic impediments students with VIs encounter in the colleges and University of Rwanda. Key findings reviewed that the curriculum was not adapted, support learning resources were not available, and the learning resources available and examinations were not adapted by the lecturers to suit the needs of students with VI. Staff development in inclusive education was still at its infancy stage, and the majority of the students with VI were un-trained in orientation and mobility and had no white canes.

Similar to Nasiforo's (2015), Majinge and Stilwell (2014) focused on SwVI in a different context. Majinge and Stilwell (2014) studied library services provision for people with VIs and in wheelchairs in academic libraries in Tanzania. The findings show that academic libraries provide services to people with VIs and in wheelchairs, but these services are not inclusive or universal. Therefore, the study recommends that academic libraries strive to provide inclusive services to all users including people with disabilities. This then entails that an inclusive policy regarding provision of library services to people with disabilities be formulated and implemented. In addition, adequate budgets and staff training are a must have. Furthermore, there is need to ensure that new

libraries constructed have ramps and maintaining working lifts, Braille materials, and large print information resources, as well as providing assistive equipment (Majinge & Stilwell, 2014).

Majinge and Stilwell's (2014) findings in Tanzanian universities are consistent with Akakandelwa and Munsanje's (2011) earlier findings in Zambia. In their study, it was noted that most learning institutions in Zambia did not provide adequate and suitable learning and teaching materials to pupils with VI. In addition, many schools did not have resource rooms for storage and use of learning and teaching materials for these pupils. Thus, most children with VI appeared to perform poorly in their studies and were required to drop science and mathematics subjects due to lack of teaching and learning materials (Akakandelwa & Munsanje, 2011).

The inadequate and unsuitable learning and teaching materials to pupils with VI reported by Akakandelwa and Munsanje (2011) were further compounded by public buildings' lack of ramps, handrails, elevators, user-friendly restrooms, and other facilities necessary for persons with disabilities to use buildings (Chilufya, 2013). Consequently, the prevailing conditions had resulted in dehumanising practical challenges in most cases when making use of the services offered in public buildings. This had restricted their enjoyment of the rights to independent living, inclusion in society, and equality of opportunity (Ndhlovu, 2009).

Furthermore, inclusive education-related issues on accessibility of public buildings by disabled persons in Zambia were re-echoed by other researchers such as Banda-Chalwe, Nitz, and De Jonge (2013). For instance, Banda-Chalwe et al. (2013) focused on mobility limitations. The findings reviewed that inaccessibility of education institutions, workplaces, and public spaces has contributed to reduced participation with negative implications for personal, family, social, and economic aspects of the lives of participants. Government buildings, service buildings, and transportation were noted to be the most important but least accessible (Banda-Chalwe et al. 2013).

Muwana (2012), whose research study focused on the Zambian student teachers' attitudes towards including students with disabilities, indicates that University of Zambia students hold positive attitudes towards inclusion. However, student teachers believed that the implementation of inclusion was hindered by the lack of adequate resources and support from the government. Muwana's (2012) research approach was driven by a quantitative methodology with over-reliance on a questionnaire research tool remotely administered to the Zambian trainee teachers. In addition, the study did not focus exclusively on learners with VIs.

Conclusion

The 33 research studies reviewed above show that both the developed and developing countries are grappling with related issues regardless of their economic, social, and political power divides. We note that for most developed countries, their focus is on issues largely bordering on the utilisation of ICTs to support learning. However, for developing countries, ICTs are on board but not widely used due to challenges of underdeveloped infrastructure and limited competent personnel in IT matters.

Overall, despite valuable steps towards inclusion taken by countries and their higher learning institutions, students with VI were still not fully included. Exclusive HE practices are still the order of the day. Exclusive practices were manifested through inflexible time limits for assessment, lack of adaptive technologies, technical difficulties using e-learning and connecting to websites and Course Management Systems, and poor use of e-learning by lecturers.

In addition, lack of inclusive policy and legal framework were pointed out as disablers to inclusion. Consequently, discrimination and exclusion tendencies were manifested in matters related to admissions, access to lectures, assessment and examinations, access to library services, halls of residence, and other disability support services. Staff development in inclusive education was still at its infancy stage, and the majority of the students with VI were un-trained in orientation and mobility and had no white canes. At societal level, inaccessibility of education institutions, workplaces, and public spaces was identified to have had contributed to reduced participation among SwVI in HE. Consequently, this has resulted in negative implications at personal, family, and extended community as persons with VI were excluded from contributing to economic well-being of their families and communities.

For SwVI to thrive in such a negatively charged environment, they took a lot of responsibility upon themselves to manage their studies and their physical and social environments. SwVI demonstrated resilience and innovativeness, yet their effort sometimes drained their energy and left them frustrated.

Study implications

Given the discourse above, if institutions are to make progress and succeed to implement inclusive education in higher learning institutions as demanded for in the UN Convention on the Rights of Persons with Disabilities 2006, reaffirmed by UNESCO (2017), then consider the following:

1. Develop and implement an inclusive policy – ministries responsible for HE should consider developing inclusive education policies. In turn, higher learning institutions should domesticate, implement, monitor, and evaluate their inclusive education policies.
2. Involve SwVI in decision-making process affecting their academic progression – given that the challenges encountered by SwVI have no pre-packaged solutions to themselves, administrators, managers, and teaching staff in institutions of higher learning are encouraged to involve the affected students in decision-making process.
3. Improve on the accessibility to the learning environment and content given the silent voices of the vision-impaired students echoing experiences of exclusive higher learning environments.
4. There is need for qualified staff to teach SwVI. The team could work collaboratively within an interdisciplinary team proactively rather than reactive manner.
5. Provide access to suitable and modern technology. Such tools could include but not limited to white canes, talking watches, voice recorders, e-books, jaws, embossers, and elevators.

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