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Accommodating Students with Disabilities: The Case of Ghanaian Academic Libraries

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Abstract

Purpose: This article investigates the accommodation of students with disabilities in ten Ghanaian academic libraries. Drawing from best practices and insights, the study aims to ensure inclusive and equitable access for students with disabilities to promote their full participation and independence in academic libraries.

Method: The study adopted a convergent parallel design, and quantitative data were gathered from 261 students with disabilities (hearing, visual, mobile) using questionnaires and interviews conducted with 28 university librarians, heads of disability units, and heads of development officers. The data was analysed and themed using SPSS and Atlas.ti. respectively. The human rights model of disability underpinned the study.

Findings: The study revealed that most academic libraries did not meet the needs of students with disabilities because some were not purposely built as libraries. Some libraries had inadequate accessibility provisions/accommodations, inadequate markings and warning signs, navigation challenges, and non-conformance with universal accessibility standards. The study further discovered a lack of disability-friendly washrooms with appropriately installed handrails and other fixtures to accommodate students with disabilities, especially mobile and visually impaired students.

Recommendations: Through practical recommendations, the study aims to provide a roadmap for redesigning library spaces and facilities to accommodate and allow students with disabilities to participate. This will enhance equitable access, inclusion, learning opportunities, and the quality of education for students with disabilities.

Keywords: Accessibility, students with disabilities, human rights model of disability, academic libraries, inclusion, Ghana

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Introduction

In recent years, research studies have increasingly focused on students with disabilities in university libraries due to the growing number of students with disabilities enrolled in higher education institutions (Babarinde & Onifade, 2020; Day & Fleischmann, 2020; Foxwell, 2023). Internationally, libraries have been advocating for inclusive environments and providing information resources in accessible formats to accommodate persons with disabilities. A study conducted by Marwiyah (2019) on social inclusion for older people through library services in Indonesia revealed that libraries are responsible for providing information access to individuals regardless of their religion, disability, or age. To achieve

inclusivity and equitable access, the resources and services provided by academic libraries must be accessible to accommodate all students including those with disabilities. Students with visual and hearing impairments need resources in alternative formats. Studies by [Baumgartner et al. \(2023\)](#), [Chijioko et al. \(2020\)](#), [Day and Fleischmann \(2020\)](#), [Kaunda and Chizwina \(2019\)](#), as well as [Majinge and Stilwell \(2014\)](#), drew attention to the limited availability and accessibility of such resources as well as problematic interaction with websites and other online content that restrict the accommodation of students with disabilities ([Ahmed & Naveed, 2020](#); [Dodamani & Dodamani, 2019](#)).

Various assistive technologies, tools, software, and applications, along with information and communication technologies (ICTs), have been developed to improve access to learning resources and create equal opportunities for students with disabilities ([Kiruki & Mutula, 2023](#); [Yadav & Singh, 2022](#); [Kiruki & Mutula, 2021](#); [Atanga et al., 2020](#); [Matlala, 2020](#); [Vuegen, Peeters & Van Hees, 2020](#); [Abu Alghayth, 2019](#)). Lack of training for both students and librarians ([Obim & Akpokurerie, 2022](#); [Coetzee, 2016](#)), as well as communication challenges for students with hearing impairments ([Saar & Arthur-Okor, 2013](#); [Epp, 2006](#)), have been identified as barriers to fully utilising these technologies. Recent studies by [Addai-Wireko \(2019\)](#) and [Aghauche et al. \(2021\)](#) concluded that, although some adaptive technologies and information resources in alternative formats are available, the environment of academic libraries remains unfavourable for students with disabilities to use independently.

[Ndiweni et al. \(2022\)](#) identified factors influencing library use, while [Addai-Wireko et al. \(2020\)](#), as well as [Bodaghi and Zainab \(2013a\)](#), examined the perspectives of architect experts on accessibility requirements for students with disabilities. Many studies concluded that university environments and some facilities including academic libraries presented barriers of varying degrees and types ([Ashigbi et al., 2017](#); [Chiwandire & Vincent, 2017](#); [Phukubje & Ngoepe, 2017](#)).

In addition to these barriers in library facilities, negative attitudes and behaviour of library staff toward persons with disabilities as reflected amongst others in the pervasive use of language ([Pionke, 2017](#)) resulted as indicated by [Baffoe \(2013\)](#) and [Oud \(2019\)](#) in lack of awareness of disability issues, prevented students with disabilities becoming independent library users and created isolation and stigmatisation.

One way of accommodating students with disabilities in academic libraries is the provision of user-centred spaces or carrels ([Bodaghi & Zainab, 2013b](#)) where they can interact with the collections, ICTs and special services or assistants ([ODonnell & Anderson, 2021](#); [Sobol, 2020](#); [Calvert, 2014](#)). [Foxwell \(2023\)](#) and [Patrick and Hollenbeck \(2021\)](#) opined that the library design should provide accessibility, engage participation by creating equitable experiences, and facilitate empowered success through flow experiences.

Advocacy articles like those of [Samson \(2011\)](#), as well as [Schulz and Fuglerud \(2012\)](#), counteracted some of these negative attitudes (discrimination, stigmatisation, exclusion) by suggesting raising awareness of and best practices for academic libraries for serving students with disabilities. [Chakraborty and Jana \(2021\)](#) as well as [Ifijeh and Yusuf \(2020\)](#), attributed shrinking budgets as the reason for most academic libraries and universities not accommodating students with disabilities fully.

Statement of the Research Problem

Globally, there is heightened interest in supporting widening accessibility and participation for persons with disabilities in higher education. This is inspired in part by the United Nations Convention on the Rights of Persons with Disabilities (CRPD) adopted in 2006, which aims to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities, and to promote respect for their inherent dignity ([Conventions on the Rights of Persons with Disabilities, 2006](#)). This convention shapes the global understanding and responses towards disability including making higher education more accessible for persons with disabilities ([Adera & Asimeng-Boahene, 2011](#)).

The Ghanaian higher education sector records increased admission rates (1,370 per 100,000 inhabitants including students with disabilities) and high governmental expenditures with 13% of total costs on education devoted to higher education (Darvas et al., 2017). With the increasing number of student enrolments, an increase in students with disabilities is expected, and the question arises as to how Ghanaian higher education institutions are accessible and accommodating to these students. Little research (Adom et al., 2023; Deku, 2017) has been done looking at accommodating the needs of people with disabilities in academic libraries in Ghana. Addressing the accessibility and accommodation challenges encountered by students with disabilities in higher institutions not only requires alignment with principles of equality and social justice but also requires the remodeling of academic libraries to accommodate students with disabilities and enrich the learning experience for all.

This current study investigates the accommodation of students with disabilities in ten academic libraries in Ghana. The findings of this study will promote inclusive practices and universal access among academic libraries to accommodate students with disabilities. This may pave the way for empowering and providing equitable academic libraries that allow students with disabilities to thrive and contribute to the academic community.

The study aims to address the research question: *What is the extent to which the design of Ghanaian public university libraries meets the needs of students with disabilities?*

Theoretical Framework

Human Rights Model of Disability

The Human Rights Model of Disability was developed in response to the rights-based approach perspective (Degener, 2016). The model is in line with the United Nations Universal Declaration of Human Rights adopted in 1948 (Berghs et al., 2016). The power imbalances in society restraining the ability of persons with disabilities to fully participate in life activities, raise a concern for the protection of the human rights of diverse populations. Socio-political movements like civil rights, disability rights, and children's rights usually informed the model's content (Berghs et al., 2016). Globally, there has been a great concern for people with disabilities and an expanded commitment to legislation on disability antidiscrimination (United Nations, 2007). Although the 1992 Constitution of Ghana guarantees people with disabilities equal rights, equality, and non-discrimination (Government of Ghana, 1992), Ghana has also enacted various legislation such as the Children's Act 1998, Act 560 (Government of Ghana, 1998), Labour Act 2003, Act 651 (Government of Ghana, 2003), the Persons with Disability Act of 2006, Act 715 (Government of Ghana, 2006) to promote, protect and ensure human rights and basic freedoms of people with disabilities. These laws advocate for appropriate facilities and reasonable accommodation for persons with disabilities especially in the built environment, transport, communication, and services.

There is an increasing critique of the inaccessible nature of the built environments as a devastating factor to individuals with disabilities in higher education institutions including libraries. Schindler (2015) attributed the reduced opportunity and autonomy of individuals with disabilities to the power of the built environment and its discriminatory capability over people's lives. This is evident from the planning and design process which segregates and excludes persons with disabilities (Schindler, 2015). Degener (2016) asserts that the inaccessibility of the built environment and related services is a human rights concern.

More importantly, the Human Rights Model has gained recognition, especially in the United Nations Convention on the Rights of Persons with Disabilities adopted in 2006. Albert and Hurst (2004) noted

that “human rights are fundamental, universal and indivisible principles by which every human being can claim justice, fairness, and equality”. That is why the model is referenced explicitly and implicitly in the Convention demanding every built environment to be accessible and usable by all individuals regardless of their abilities (Jackson, 2018; Lawson & Beckett, 2021). Social inclusion and nondiscrimination are engendered by the rights-based approach to barrier removal (Berghs et al., 2016). However, the only problems envisioned are the lack of enforcement and the misinterpretation that may result in inappropriate modification of environments (Berghs et al., 2016). Besides this, there is the temptation to limit individuals’ rights to personal protection and safeguarding instead of creating enabling environments (Berghs et al., 2016).

Furthermore, the Social Model of Disability and the Human Rights Model of Disability both strive to promote and protect the rights of persons with disabilities while challenging the inaccessibility of the built environment, transport, and services. They both resist the exclusionary systems and practices that affect persons with disabilities. However, there are some differences between them. The human rights model is a model of disability policy whereas the social model relies on social factors to understand disability (Degener, 2017; Lawson & Beckett, 2021). While the social model does not emphasise identity politics, the human rights model pays attention to cultural identification and minority (Degener, 2017).

Literature Review

Accessibility in Academic Libraries

There is a general concern that the responsibility of universities, including their libraries, is to provide inclusive and accessible environments and learning resources to accommodate the needs of diverse students. Moriña (2017) asserted that inclusivity is one of the indicators of a quality university or any academic library. Across the globe, accessibility practices and students with disabilities have been described as an ongoing concern in tertiary institutions, especially libraries (Miranda, 2014), because access is significant for the inclusion and accommodation of students with disabilities (Cinarbas & Hos, 2020). Within libraries, accessibility means accommodating every student regardless of their abilities. Accessibility is associated with the buildings, resources, and services provided by higher education institutions, including libraries. However, the accessibility of university libraries has always posed some challenges for the accommodation of students with disabilities.

The design of buildings in university libraries can restrict access to facilities and services (Cinarbas & Hos, 2020) and may infringe on the rights of students with disabilities. This may further create a barrier against inclusive education (Cinarbaş, 2016). This suggests that when students with disabilities are not able to access services and facilities, they would have a problem adapting to the educational environment, posing a restriction on their accommodations. As a result, academic achievement and attendance of persons with disabilities might be low. If effective measures are not taken it leads to a high rate of dropout of students with disabilities due to not being able to cope with the accessibility and accommodation challenges within the university environment including libraries. A way to facilitate social inclusion and a more accommodating environment for all students is to eliminate all accessibility barriers that restrict students with disabilities.

Cinarbaş (2016) asserted that the availability and accessibility of resources and materials promote teaching, learning, and research in universities. The author argued that the lack of access to resources from the library to support the curriculum and teaching impedes the learning of students with disabilities in universities. Collins et al. (2019) advocated for the need to provide flexibility and variety in teaching and learning, providing quality access to information resources, buildings, and communication networks. This makes university education inclusive for the benefit of students with disabilities. This suggests that higher institutions including libraries should provide resources to accommodate the

demands of students with disabilities. Students with disabilities, therefore, need accommodations, quality services, and information resources that support their education without discrimination (Hayes & Bulat, 2017). Mandated accommodations and related services are usually not able to address the diverse requests presented by the multiplicity of differences among students (Paton, 2017). Supporting effective experiences of students with disabilities requires the elimination of accessibility barriers that affect learning and participation.

But the surest means to resolve the challenging demands of diverse students, and to guarantee the equity of accessibility and participation for students with disabilities in higher institutions, is to adopt approaches that support and improve student success irrespective of their abilities. The study by West et al. (2016) on inclusive instructional practices of university faculty argued for the adoption of a universal design framework in tertiary education to address the growing student diversity. The study pointed out that universal design ensures that all products, environments, communications, and buildings are accessible to all people to the greatest extent possible, regardless of their disabilities. Universal design is recognised as one of the “scientifically valid frameworks for guiding educational practice” (West et al., 2016). This shows that universal design best addresses the needs of student diversity, especially those with disabilities to reduce the barriers to accessibility and increase the full participation of people with disabilities in society.

Ultimately, universal design has the potential to transform accessibility in higher education institutions including academic libraries as well as promote inclusive education and the concept of disability (Wilson, 2017). Universal design has been reported to provide both academic and social benefits to all students, especially those with disabilities.

University campuses have gradually been recognised as diverse environments. Higher institutions, especially universities must consider accommodating students with disabilities from various backgrounds, cultures, languages, ages, and genders. As the demand for equity of access and inclusion for students with disabilities increases, higher institutions must examine methods to best address the demands of the changing student populations.

Inclusive Practices

In recent years, due to the increase in student diversity in higher institutions, there has been a growing awareness among stakeholders and educators about inclusive practices. Sigstad et al. (2022, p. 10) define inclusive practices as “an ongoing process of respecting and responding to individual needs and opportunities for equal participation, belongingness, and accessibility within the learning community”. Inclusive practice is about employing different steps towards equity, engaging all students’ participation in creating their learning environment and fostering belongingness. Globally Inclusive practice has been considered a way to guarantee equal educational rights and participation in society for individuals with disabilities (Aldabas, 2021; Haug, 2017). Within higher education institutions, the application of the principles of inclusive practices has proven to produce benefits for all students, participation in the learning process, and education for all (Alu, 2023). Inclusive space provides equitable opportunities and quality learning for diverse students (Cinarbaş, 2016). Within higher education institutions where inclusive practices are encouraged, it impacts the social and academic success of students especially students with disabilities (Moriña, 2017). This suggests that inclusive practices promote environments that accommodate a wide range of diverse students, not just those with disabilities. This further indicates that inclusive practices do not physically integrate students with disabilities but promote positive social, emotional, and academic outcomes for all students in mainstream education (Mieghem et al., 2020; Hehir et al., 2016). Considering the rapid increase in the number of students with disabilities in tertiary education, there is a need to promote inclusive practices that would change the prevailing procedures and processes within tertiary education. This points to the need for the appropriate design of policies,

actions, and strategies that contribute to ensuring the successful completion of higher education by diverse populations especially students with disabilities.

Research Methodology

The objective of this study is to investigate the accommodation of students with disabilities in ten Ghanaian academic libraries. Given the complexity of disability, the mixed research method using qualitative and quantitative approaches was required. A multiple case study design was employed while embracing the pragmatic paradigm. The pragmatist paradigm “views inquiry as a natural part of life that aimed at improving our condition by adaptation and accommodations in the social world in which we live” (Kaushik & Walsh, 2019, p.11). The convergent parallel design employed provided an opportunity to obtain an in-depth understanding of how academic libraries accommodate students with disabilities.

Concerning the qualitative research methodology, open-ended questions were used for purposively sampled university librarians, heads of disability units, and heads of development offices. In contrast, closed-ended questions were used for students with disabilities (hearing, visual and mobile impaired) in ten universities. In this current study, the researcher visited the selected research sites and both qualitative and quantitative data were collected concurrently at the same time. Thus, two data sets were generated, analysed separately, and the results were discussed separately and side by side constructed on themes generated from the research objectives. The results were further merged in a triangulating manner as validity checking.

For quantitative data, the researcher used SPSS to generate descriptive statistics for easier interpretation of the findings while qualitative data were transcribed verbatim to maintain their meaning (Ary et al., 2014) and analysed using ATLAS.ti. The results of qualitative data were presented using narrative and interpretive reports.

Findings of the Study

Questionnaires for Students with Disabilities

This section presents the data gathered from the web-based questionnaires administered to students with disabilities at ten (10) public universities in Ghana. Data from the questionnaires administered to students with different impairments are presented separately.

Students with Visual, Hearing, and Mobility Impairment Responses

Responses were received from 162 visually impaired, 69 mobile impaired, and 30 hearing impaired students. The distribution of responses according to universities with the highest was UEW with 109, followed by UG with 59, KNUST with 41, and UCC with 40 student responses. Table 1 represents the details.

Table 1: Distribution of Responses

Name of University	Visually impaired	Mobile impaired	Hearing impaired	Total
UG	41	14	4	59
UEW	74	13	22	109

UCC	35	4	1	40
KNUST	11	27	3	41
UDS	1	4	0	5
UMAT	0	2	0	2
UPS	0	1	0	1
UHAS	0	1	0	1
UENR	0	2	0	2
GIMPA	0	1	0	1
Total	162	69	30	261

Access into and within Academic Libraries by Students with Disabilities

The external and internal spaces and facilities of the library were assessed to ascertain how they accommodate students with disabilities. Details on the physical accessibility outside and within the university library spaces as well as various facilities available are provided.

Responses of Students with Visual Impairments

Access to Facilities and Services

Students with visual impairment were asked to indicate if the library design provided easy access to facilities and services. The majority (54.94%) of respondents indicated that the library design did not provide easy access to facilities and services, while only 29.63% regarded access to some facilities and services as easy. The rest of the respondents answered 'partly' (10.49%) and 'Not sure' (4.95%). Figure 1 illustrates the detailed data.

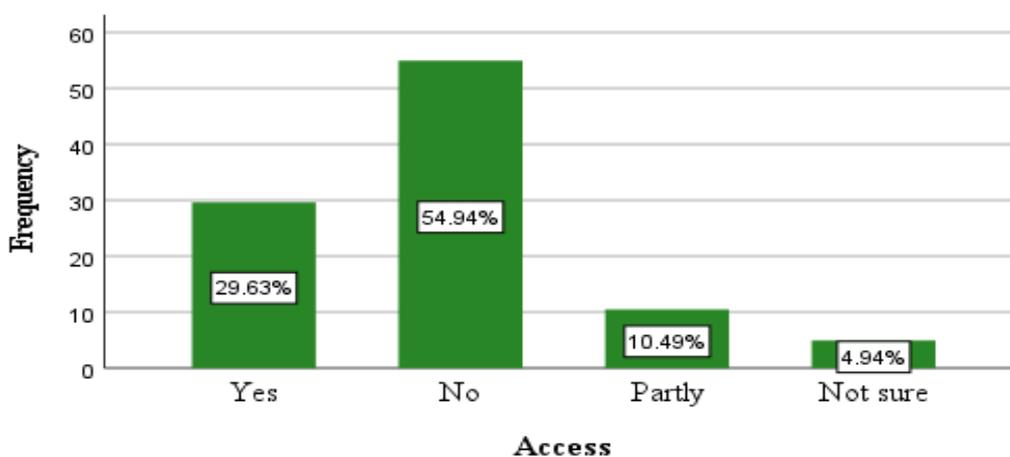


Figure 1: Access to Facilities and Services (n=162)

Responses of Students with Mobility Impairments

Most responses regarding the external environment reported that forty-three (43) students (62.3%) indicated sufficient space in front of the entrance doors of the libraries to allow a wheelchair to turn around or enter easily.

Within the library, students recorded no automatic doors (84.1%), no disability-friendly toilets designated for individuals with disabilities (78.3%), no adjustable reading and computer tables (59.4%), no access to all the floors of libraries (58.0%), inadequate clear easy-to-read signs with pictograms throughout the library (52.2%), and shelves are not reachable from a wheelchair (52.2%). The responses are depicted in Table 2.

Table 2: Physical Access outside and inside the Library Building (n=69)

	Yes	No	Partly	Not sure	Total
There is sufficient space in front of the entrance door to allow a wheelchair to turn around or enter easily.	43 62.3%	17 24.6%	6 8.7%	3 4.4%	69 100%
Are there disability-friendly toilets designated for individuals with disabilities?	4 5.8%	54 78.3%	3 4.3%	8 11.6%	69 100%
There are automatic doors in the library.	2 2.9%	58 84.1%	2 2.9%	7 10.1%	69 100%
There are clear and easy-to-read signs with pictograms throughout the library.	19 27.5%	36 52.2%	8 11.6%	6 8.7%	69 100%
There are procedures to assist patrons with disabilities in retrieving materials from inaccessible locations.	27 39.1%	26 37.7%	4 5.8%	12 17.4%	69 100%
Are shelves reachable from a wheelchair?	16 23.2%	36 52.2%	9 13%	8 11.6%	69 100%
There are adjustable reading and computer tables designed for people with disabilities.	14 20.3%	41 59.4%	4 5.8%	10 14.5%	69 100%
Students with disabilities have access to all the floors of the library.	15 21.7%	40 58%	6 8.7%	8 11.6%	69 100%

Responses of Students with Hearing Impairments

A question sought to determine the physical access into and within the library buildings by students with hearing impairments across the ten university libraries. The responses indicate no entry phone access (60%), no induction loop systems (53.3%), no adequacy of sign language interpreters in the libraries (56.7%), inadequate clear easy-to-read signs with pictograms on sign language throughout the library (50.0%), inadequate Videos/DVDs/Audiobooks with subtitles and/or sign language (60.0%), inadequate library information sent to deaf students via a text telephone (56.7%), inadequate information in an easy-to-read format with appropriate captions (46.7%), lack of computer-assisted real-time captioning or computer-assisted note-taking services (40%), inadequate non-print materials collections for deaf clientele (73.3%) and inadequate deaf-related electronic links in the online databases (40%). The detailed responses are shown in Table 3.

Table 3: Access to the External and Internal Environment of Libraries (n=30)

	Yes	Partly	No	Not sure	Total
There is an entry phone accessible for deaf users.	2 6.7%	3 10%	18 60%	7 23.3%	30 100%
There is an induction loop system for hearing-impaired students in the library.	6 20%	3 10%	16 53.3%	5 16.7%	30 100%
There are sign language interpreters.	4 13.3%	3 10%	17 56.7%	6 20%	30 100%
Clear easy-to-read signs with pictograms of sign language throughout the library.	8 26.7%	3 10%	15 50%	4 13.3%	30 100%
There are Videos /DVDs/ Audiobooks with subtitles and/or sign language.	8 26.7%	0 -	18 60%	4 13.3%	30 100%
The library sends information via a text telephone.	6 20%	3 10%	17 56.7%	4 13.3%	30 100%
There is information in an easy-to-read format with appropriate captions.	6 20%	6 20%	14 46.7%	4 13.3%	30 100%
There are computer-assisted real-time captioning or computer-assisted note-taking services.	9 30%	5 16.7%	12 40%	4 13.3%	30 100%
There are non-print materials collections for deaf clientele.	3 10%	0 -	22 73.3%	5 16.7%	30 100%
There are deaf-related electronic links in the online databases.	10 33.3%	3 10%	12 40%	5 16.7%	30 100%

Interviews

The data were gathered via face-to-face in-depth interviews with university librarians, heads of the Physical Development Office, and heads of the Disability units in ten (10) public universities in Ghana. Some similar questions were asked to all three interviewee groups and varied questions aligned to the expertise of the interviewee groups were asked. Responses were transcribed, analysed, and categorised into themes.

The ten (10) university libraries were labelled, UL1, UL2, UL3,.....UL10.

The ten (10) University Librarians were labelled, LIB1, LIB2, LIB3,..... LIB10.

The ten (10) Heads of Disability Units were labelled, DU1, DU2, DU3,..... DU10.

The ten (10) Heads of the Physical Development Office were labelled, PD1, PD2, PD3,....PD10.

University Library Design

A question was posed to all three of the interview groups (Librarians, Disability Officers and Development Officers N=28) to solicit their views on how their university library design met the needs of students with disabilities. The following responses extracted from the interviews were provided relating to library design and the needs of students with disabilities.

LIB10 and PD9 said;

“This edifice which we are currently housed, does not meet the needs of students with disabilities because it is not a purpose-built library. As far as this building which we are in is concerned, and as far as the library is concerned, we do not have any provision for disability access. The library does not have markings to aid access for visually impaired students”.

LIB3 in support of LIB10 also reiterated that;

“The current library design does not meet accessibility standards because accessibility features were not embedded in the design. The major shortcoming of the library is the lack of vertical access provision to accommodate the needs of differently-abled students in the university. So, not much has been achieved in terms of accessibility for students with disabilities. There are still areas where the library needs to redesign to make it accessible to everyone”

The responses indicate that the needs of students with disabilities were not met in some university libraries because most of the libraries were not specifically designed as libraries. Some libraries had inadequate accessibility provisions/accommodations, inadequate markings and warning signs, navigation challenges, non-conformance with accessibility standards and needed redesigning/retrofitting in order to accommodate students with disabilities.

External Environment of the Library Building

To determine the accessibility of the external environment of the library building, interviewees were asked about the parking area and pathways as well as the entrance gate of the library.

Library Parking Slots and Pathways

In response to the questions on whether the library has parking areas and pathways marked with the international symbol of access and whether the parking spaces are close to the entrance. Below are the responses extracted from the interviews regarding library parking slots and pathways:

The participants (LIB1, LIB2, LIB3, LIB4, LIB5, LIB6, LIB7, LIB8, LIB9, LIB10) indicated that;

“There are no designated parking areas for wheelchair users marked with a symbol of access” The parking slots are a little distance away from the main entrance with a rough pathway. The parking area has no pavement”

DU4 suggested as extracted from the interview, that;

“Signages need to be installed along pathways that direct disabled students to the library”.

The responses reveal a lack of designated parking slots marked with the international symbol of access for wheelchair users, inadequate signage, little distance between parking slots to the entrance and uneven pathways as some of the external environmental barriers that hindered access of students with disabilities.

Library Entrance Gate

The responses to the question regarding the accessibility of the main entrance gate for students with disabilities are presented below.

“The doors are not easy to open, it requires some amount of effort by users, especially students with disabilities. There are no automatic doors installed in the library” (LIB1, DU1, February 2022).

“We need to provide wide access doors for wheelchair users, and the doors should demand minimal effort to be opened” (PD8, DU7, DU8, DU9, DU10, 2022)

“Apart from that, the threshold at the gate, wheelchair users can easily navigate and get access to every space because the rest of the floors are not stepped at the entry doors” (PD42022)

The responses from the participants indicate that all ten (10) university libraries' main entrances lack automatic doors, while others had inadequate swing doors and thresholds at the entrance gate which restricted access to students with disabilities, especially wheelchair users and visually impaired patrons.

Access Ramps

Responses to the questions regarding access ramps to the entrance of the university libraries for easy access especially for students with mobile and visual impairments are shown below.

LIB 1 mentioned that;

“There are a few provisions in place. For instance, at the entrance, we have a slide walkway/ramp for wheelchairs to easily access the library building. There is also another designed ramp/walkway leading to the Research Commons for graduate students with disabilities. So far these are some of the designed strategies in place for students with disabilities”.

Similarly, DU1, DU2 and DU3 indicated;

There is a need to install metal rails or signal systems that will be able to guide visually impaired students to specific places or sections in the library to access the information and facilities needed”.

The responses from the participants revealed that some of the university libraries provide minimal access to ramps with no warning signals which hindered access for students with mobile and visual impairments.

Internal Environment of the Library Building

It is required that the internal layout and space facilitate access for students with disabilities. The responses to the question of whether the internal design and space of the libraries provided easy access for students with disabilities are shown below.

“No tactile floors and markings to aid access for visually impaired students and further suggested the inclusion of tactile floors and markings that reorient users getting into the library, especially the visually impaired” (PD9, April 2022).

“As of now, it would be difficult for some students with disabilities to have access to the Research Commons which is on the third floor unless lifts are installed to provide access for them” (LIB1, February 2022).

“Appropriate signage should be installed to aid movement and circulation in the library” (PD8, July 2022).

“Wheelchair users cannot retrieve books without assistance because of the height of the shelves” (LIB4, April 2022).

“The existing library building provides minimal access to resources and facilities for disabled students. There is a minimum turning radius of 1.5m for wheelchair users. This current library does not satisfy this minimum turning point considering the arrangement of the furniture” (PD9, May 2022).

“The arrangement of the shelves needs to be designed in a manner to allow visually impaired students to locate books on the shelves independently” (LIB1, February 2022)

“The arrangement of the library should eliminate barriers and provide free circulation and navigation for disabled students” (LIB3, May 2022).

“The computer tables’ height is not appropriate for wheelchair users” (LIB3, April 2022).

“The height of the desk for the library Online Public Access Catalogue poses an access challenge to wheelchair users” (LIB4, April 2022).

“The library should provide appropriate adjustable furniture and computer workstations to accommodate wheelchair users” (LIB2, May 2022; PD8, July 2022).

The responses showed lack of tactile floors, inadequate lifts/elevators, inappropriate signage, lack of Braille shelf identifiers/labels, inappropriate height of shelves, restricted circulation and navigation, inadequate adjustable furniture, inaccessible computer workstations and reference desk as some of the

internal barriers in university libraries that restricted access and full participation of students with disabilities in university education.

Facilities

The responses of interviewees on what facilities are offered to students with disabilities are discussed.

Washrooms

Responses to whether there are washrooms dedicated to students with disabilities are recorded below;

LIB5 said that;

“The library does not have any designated washrooms specifically for students with disabilities”.

PD9 claimed that;

“The washrooms and doors are narrow and difficult to navigate by wheelchair users”

While LIB1, LIB2, LIB4, LIB7 and LIB9 suggested

“The installation handrails and other fixtures make the washrooms conducive for persons with disabilities”

The responses above show that not much effort has been made to accommodate students with disabilities in some of the university libraries. The participants heightened the lack of disability-friendly washrooms with the appropriate installation of handrails and other fixtures to accommodate students with disabilities, especially students with mobility and visual impairments.

Designated Spaces

The extract of responses on whether university libraries had designated sections or space(s) for students with disabilities to practice inclusion and take into consideration the needs of students with disabilities are presented below.

“There is no Braille library for the visually impaired, so there are no information services available for them”(LIB4, April 2022).

“Unfortunately, the library has no special space for them” (LIB5, April 2022).

“There is a section for disabled students in the basement of the library. The library is collaborating with the Faculty of Education and Educational Foundation to provide assistive devices and services for differently abled students” (LIB3, May 2022).

The responses indicate that the majority of university libraries had Braille libraries. The libraries had no designated spaces for students with visual or any other disabilities.

Discussion

Profile of Interview Respondents

The study discovered that of the 28 respondents interviewed, eighteen (64.3%) were male and ten (35.7%) were female. Two out of the ten females had Ph.D. qualifications compared to five males holding Ph.Ds. There is evidence of gender disparity among the interview respondents, as more males were employed as heads of departments in public universities. It appears that there is less emphasis on

gender equity as well as social justice and gender fairness regarding employment in higher education institutions in Ghana.

Physical Access into and within Academic Libraries

The social model and human rights model of disability advocates for the elimination of all forms of physical barriers that impede and exclude students with disabilities from fully participating in higher education.

Current University Library Design

In combination with high-quality service, equipped with various resources, and physical accessibility, such as ramps or elevators, academic libraries are still considered places with inadequate disability accommodations. Findings from University Librarians and visually impaired students (69.7%) revealed that most university libraries did not meet the needs of disabled students because some were not purposely built as libraries. Some libraries had inadequate accessibility provisions/accommodations, inadequate markings and warning signs, navigation challenges, and non-conformance with universal accessibility standards. This study adds to the understanding that persistent inaccessibility and non-conformity, as indicated by [Addai-Wireko \(2019\)](#) are ineffective for independent use. Other scholars such as [Khakali \(2021\)](#) and [Cinarbas and Hos \(2020\)](#) suggest disabling these rooted structural features. Overcoming these barriers involves a paradigm shift to include universal design principles in developing the library's environment from its inception.

External Library Environments

The section deals with the external environment of the library building which includes the parking slots, pathways, directional signs/guide signals, library entrance gate, and access ramps. These were examined to determine the accessibility and accommodation of students with disabilities.

Library Parking Spaces and Pathways

Disability accommodations in higher education institutions especially academic libraries are a great concern for differently abled students. Library parking spaces and pathways were major issues. Disability accommodations outside the actual academic library space are important for differently abled students at higher education institutions. Findings from University Librarians, University Development Officers, University Disability Officers, and students with mobility impairments show that all ten public university libraries lacked parking spaces marked with the international accessibility symbol for people with disabilities. This demonstrates a clear pattern of exclusion for this category of students before they even enter the library building. It highlights a fundamental failure to include students with disabilities from the beginning, as supported by [Tudzi et al. \(2017a\)](#) and [Ayoung et al. \(2021\)](#). This enhances the understanding that the library's external environment can impede access for individuals with disabilities, highlighting a gap between policy and practical implementation at a fundamental level.

Library Entry Gate

Accessibility in academic libraries is crucial for differently abled users. Building on research surveys that documented non-compliance, such as [Tudzi et al.'s \(2017a\)](#) finding that 63% of library entrances exceeded the standard thresholds. Reporting from university librarians, development officers and students with disabilities discovered a more complex reality. The fundamental absence of automatic doors across all ten academic libraries systematically excludes students with visual and mobile

impairments. A finding that aligned with [Attakora-Amaniampong et al. \(2021\)](#) highlights persistent exclusion and restrictions imposed on persons with disabilities at the most critical access point. Furthermore, as noted by [Ayoung et al. \(2021\)](#), the concurrent lack of entry phones for deaf users demonstrates difficulties that are not only physical but also communicative, creating exclusion that affects diverse disability groups.

Access Ramps

A ramp at the entrance of every building is a key part of accessibility standards. Simply having ramps is not enough, because they need to be well-designed. Accessibility standards require gentle slopes and two handrails to allow easy access for individuals with disabilities. Research findings from University Librarians, University Development Officers, University Disability Officers, and students with disabilities (52.2% of students with mobility impairments) found that even where ramps exist, they often do not have essential safety features such as railings on both sides for independent and secure use. This shows that disability accommodations often do not fully meet requirements, which leads to challenges instead of providing reliable access. However, these findings contrast sharply with a study conducted by [Nazim et al. \(2021\)](#) who discovered that the facilities at the Helen Keller Library at the Awaharlal Nehru University were almost sufficient including ramps with railings on both sides for students with disabilities. This demonstrates that a comprehensive ramp design is achievable. This juxtaposition suggests that the present state of disability accommodations in academic libraries in Ghana is characterized by frequent failure to fully implement basic accessibility standards.

Internal Library Environments

Elevators

Elevators are required in multi-level libraries to provide both vertical and horizontal circulation for people with or without disabilities. Building on the universal design principles advocated by [Spina \(2021\)](#) and [Burgstahler \(2021\)](#), findings from visually impaired students (69.75%) and mobile-impaired students (58%) indicate that the mere existence of a lift is insufficient. The absence of integrated accessible features, such as synthetic speech, Braille, and tactile signage, hinders individuals with disabilities from functioning autonomously and engaging comprehensively. This discovery deepens our comprehension and highlights a deficiency in the Global South. Regional analyses in Eswatini ([Hayes & Bulat, 2017](#)), Ghana ([Ayoung et al., 2021](#)), and Nigeria ([Babarinde & Onifade, 2020](#)) corroborate this perspective. Conversely, the Global North exhibits inclusive design that enhances access to resources and spaces for students with disabilities. This disparity underscores the implementation of disability policies globally.

Appropriate Signage

Signage is a critical component for access for disabled students in the academic library environment. A research study by [Tudzi et al. \(2017a\)](#) reported a lack of perceptible information to aid access for individuals with disabilities. The results from Librarians, Development Officers, Disability Officers, and differently abled students (52.2% mobile impaired, 50% hearing impaired) indicate huge systemic gaps in the universal existence of inappropriate signage. This finding not only demonstrates the absence of signs but also the exclusionary deployment of signage that lacks Braille form, using inappropriate colour contrast, and neglecting sign language and pictograms. This finding highlights and frames inadequate signage as an active hurdle that impacts students with disabilities psychologically ([Attakora-Amaniampong et al., 2022](#)) and compromises the safety of users in emergencies. The study of [Nazim et al. \(2021\)](#) noted a lack of clear pictograms. This underscores the point that the advanced deployment

of assistive technology does not tantamount to a comprehensively accessible information environment. Thus, the current state of academic libraries in Ghana is characterized by a grave omission of signage that serves as a guide and a fundamental tool for wayfinding and communication. This further highlights the disconnect of services available and the ability of students with disabilities to independently locate and use library resources.

Shelves, Adjustable Furniture, Computer Workstations and Navigation

Based on a study by [Adom et al. \(2023\)](#) that documents inaccessible stacks and workstations, the current findings from Librarians, Development Officers, Disability Officers, and students with disabilities (52.2% mobile-impaired, 54.3% visually impaired) discover a more pervasive issue. That is the unmodified library infrastructure, including shelves, furniture, and computer stations that actively exclude differently abled students from participation. Furthermore, the inappropriate height of shelves and the lack of Braille labels are critical concerns for accessing the library collections. This enhances our understanding that the state of academic libraries in Ghana remains designed for nondisabled users, neglecting differently abled students who rely on inadequate accommodations. These findings corroborate with [Nazim et al. \(2021\)](#), who indicate the persistence of unreachable shelves along with adjustable tables. Thus, scholars such as [Burgstahler \(2021\)](#), [Spina \(2021\)](#) and [Cross \(2020\)](#) advocate for universal design of workstations, underscoring a fundamental need to reimagine library infrastructure from the onset for equitable participation and an accessible environment.

Specialised Spaces

With reference to the need for universally designed and dedicated accommodations for differently abled students, results from Librarians, Development Officers, Disability Officers, and students (73.4% with visual impairments, 78.3% with mobile impairments) reveal serious gaps: the absence of disability-friendly spaces ranging from specialised Braille libraries to restrooms for the disabled users constitutes a systemic omission. This finding, as supported by studies in Kenya ([Kiruki, 2018](#)) and Ghana ([Yayra et al., 2013](#); [Braun & Naami, 2019](#)), highlights critical inaccessible facilities that compromise academic participation, safety and independence of students with disabilities. The sharp contrast study by [Nazim et al. \(2021\)](#) indicates the sufficient facilities of Helen Keller Library, serving as proof that inclusive design is attainable. This suggests that the present deficiencies among academic libraries in Ghana reflect the lack of institutional commitment, thereby connecting physical accommodations to human support systems.

Limitations of the Study

The participants of the study responded to the questionnaire on their own accord, however, the researcher anticipated that the respondents with visual impairment would have a problem with the web-based nature of the questionnaire, and alternative measures would be taken to accommodate them. The tendency of some participants not to reveal disability status, or fatigue due to the lengthy nature of the instrument caused a higher drop-out rate which may limit the results.

Conclusion and Recommendations

The physical accessibility challenges witnessed in the academic libraries studied restricted the independence of students with disabilities and excluded them from fully participating in accessing the facilities and resources of the libraries. The lack of equitable access hinders the inclusion of students with disabilities in academic libraries. This situation indicated that the design of the academic libraries

did not meet the needs of persons with disabilities in higher institutions in Ghana. This has deepened the need for the redesign of academic library spaces to accommodate students with disabilities.

The physical design of the library spaces is significant in providing access for students with disabilities. The study recommends the redesign of library spaces and facilities to provide access to appropriate parking lots, warning signs, ramps with handrails, automatic doors, elevators to provide vertical circulation, signage that accommodates disability users, disability-friendly washrooms with appropriate accessories, accessible corridors and pathways to provide horizontal circulation, and non-slippery floor surfaces and tactile warning surfaces among others to accommodate and allow participation of students with disabilities. This allows for some level of independent access for these students.

Academic libraries should conduct accessibility audits using the International Federation of Library Associations and Institutions (IFLA) Checklist for Access to Libraries for Persons with Disabilities to detect accessibility deficiencies in libraries. This would allow librarians to address these accessibility challenges and enable the accommodation and participation of students with disabilities.

Academic libraries should establish spaces dedicated to students with disabilities. If students know where their 'special space' is, they will find it easier to navigate the libraries. Dedicated spaces and restrooms will contribute to students with disabilities feeling more at home and inclusive of the library which will enhance the inclusion and quality of education for students with disabilities.

CRedit Authorship Contribution Statement

Augustine Aduko Alu: Conceptualization, Quantitative and qualitative data collection and analysis, writing - original draft preparation

Lizette King: Conceptualization, Writing- reviewing, editing, and supervising.

Declaration of competing interest

No conflicts of interest are associated with this publication

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Data Availability

Data will be made available on request

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