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The 'shadow pandemic' in online learning: perspectives of visually impaired students from Ghana and Egypt

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ABSTRACT

The emergence of COVID-19 accelerated the integration of digital technologies in teaching and learning to expand access to education. However, one cannot ascertain if visually impaired students learning online benefited from this innovation, a phenomenon this netnographic study explored. Social media tools were used to interview 12 visually impaired students from a Ghanaian and an Egyptian higher education institution. Analysis of the data revealed multiple 'shadows' in the students' experiences. The findings further revealed that the studied institutions prioritized physical access and they also used lopsided crippling discourse. Lastly, the support systems that enhanced the studies of visually impaired students came to light. The study findings have consequences for this cohort of students, so this study recommends agile and futuristic policies to reverse the trend. Finally, it is recommended that the capabilities of faculty and staff need to be enhanced to effectively accommodate visually impaired students in virtual spaces.

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A4E framework; covid-19; netnography; online learning; shadow pandemic; visually impaired students learning online

Points of interest

- The study uses shadow pandemic, a concept mostly associated with violence against women and children during pandemics, to mirror the challenges of Ghanaian and Egyptian visually impaired students who learned online during the lockdown
- This study is among the first to adopt Shaheen's Accessibility for Equity theory as a lens to explore the experiences of visually impaired students
- The elements of the accessibility for equity framework helped in framing the categories and themes that emerged from the analysis of the field data
- The findings of the study revealed that the challenges the study participants experienced significantly outweighed the support that was available to them during the difficult periods of their study.

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Introduction

The emergence of the COVID-19 pandemic in late 2019 momentarily grounded almost all human activities and tested human ingenuity. The probable and sustainable solution was an impelled global digital revolution to get the 'world' back on its feet. This accelerated the digital agenda in teaching and learning as online learning was largely embraced as a means for enabling inclusion. People who were previously excluded from education were able to reconcile their education with other responsibilities (Henry 2018). Bunbury (2020) therefore articulated that inclusive education promotes equality for people without recourse to their conditions. Thomas (2016), however, advocates for a need to improve educational systems for inclusivity.

Though online learning keeps extending its reach across the globe, it is fraught with challenges including students' trust in its effectiveness and high student dropout rates (Samuel and Bekele 2023; Bell and Federman 2013; Kwapong 2023). Also, teachers and students' low digital literacy, inadequate or unavailable digital gadgets and the lack of policy frameworks present challenges to online learning (Adarkwah 2021; Samuel 2021). Besides, the speed with which education transitioned online expanded the vocabulary of the challenges as it was referred to as 'crisis-response migration', 'emergency remote teaching, and 'public education forcibly decentralized into students' homes' (Adedoyin and Soykan 2023; Watts 2020; Williamson, Eynon, and Potter 2020). Due to the radical nature of the shift, Waller et al. (2021, 436) conclude that the transition made online learning *'less "humane" and generally non-personalised … lack the "depth", "colour" and "texture" of traditional face-to-face experiences, for learners and educators alike'*

Moreover, one group of learners whose challenges may be dire but are yet to receive the needed attention through research are visually impaired online learners. Incidentally, research holds that the digitization of education increased barriers to students with disabilities (Burgstahler 2015). Similarly, (Shaheen 2022, 78–79) recounts that many of the technologies that facilitated online learning during the pandemic are tragically inaccessible to disabled students. The author further identifies *'a pattern of oppression within compulsory education that predates the pandemic by almost two decades and is rooted in ableism'.* Thus, visually impaired students face critical challenges being accommodated online due to a lack of access to and usability challenges with assistive technologies and nonexistent policies that hinder their involvement in online learning (Samuel 2021; CDC 2019; Reyes, Meneses, and Melián 2022).

Though one cannot belabour the efforts of institutions to sustain education through online learning during emergency periods, lack of equity for all manner of students contravenes global policy frameworks such as the Salamanca Statement (UNESCO 1994) and the Convention on the Rights of Persons with Disabilities (United Nations 2006). These contraventions are

multilayered and fail to acknowledge that people do not own their disabilities, rather they are prevented from fully participating in activities. The plight of the visually impaired students learning online during a pandemic could be compared to a 'shadow pandemic'. This concept has been mainly ascribed to violence against women and girls during pandemic impelled lockdowns (Okwuosa and Diamond 2021; UN News 2020). Mutavati, Zaman, and Olajide (2020) called for efforts to halt the shadow pandemic before it becomes a human rights epidemic. Hence, this study uses the concept as a mirror to reflect the challenges of the students studying online and conceptualizes shadow pandemic as the presence or absence of any condition that prevents visually impaired students from meaningfully participating in online learning.

Moreover, studies on disabilities and online learning have been going on for decades (Shaheen 2022). Likewise, those that highlight the challenges that were amplified due to the pandemic as shared in the buildup so far. However, the peculiar challenges of visually impaired students who were compelled to learn online and whose negative experiences can be described as shadow pandemic are yet to be adequately explored and theorized. As noted by Dai and Hu (2022), people with disabilities are often ignored and disproportionately impacted by disasters. This is in line with the current researcher's view that research on the phenomenon is limited. The researcher thus draws on Shaheen's (2022) Accessibility4Equity (A4E) framework, which draws from political and social models to explore the inherent challenges faced by visually impaired students from a Ghanaian and Egyptian higher education institutions. To fully appreciate the shadow pandemic of these students, this study framed the following questions in line with the key elements of the A4E framework;

1. How did the institutions ensure that their online learning environments were 'born' technologically and pedagogically accessible to the visually impaired students?
2. Which sociotechnical praxis approaches were adopted to collaboratively guide the shift to online learning?
3. What support systems enabled the visually impaired students to study online during the lockdown period?

Having established the introduction, aim and research questions for this study, the next section delves into the context of online learning at the study sites, a review of the literature and framework adopted for the research.

Online learning at the study sites

This section discusses the state of online learning and the policy frameworks that guided the shift to online learning at the two studied institutions. The

current study was executed at the University of Ghana (UG) and the American University in Cairo (AUC). UG is Ghana's premier and largest university founded as the University of the Gold Coast by Ordinance in 1948 to promote university education, learning and research (UG 2022). The pursuit to mediate teaching and learning with technology started with the piloting of the Sakai learning management system (LMS) between 2010 and 2013 which was finally deployed in 2014. The switch was backed by the 2012 UG ICT Policy with the principal aims of moving from the conventional mode of teaching and assessments to a hybrid and expand access for prospective students (Samual et al. 2019). However, the researchers opine that apart from the Distance Education Department, only a fraction of faculty used the Sakai LMS until the COVID-19 pandemic revolutionized teaching and learning globally and technology adoption became the only means of avoiding the closure of schools. When UG shifted instructions online around May 2020 there were 54 visually impaired students out of a total of 146 registered students with disabilities. Before the emergence of the pandemic, UG had instituted a Policy for Students and Staff with Special Needs: Facilities and Services (UG 2019). The Office of Students with Special Needs (OSSN) had also been established to provide support services to students with disabilities. The OSSN provides 13 essential services out of which the following four are specifically tailored for visually impaired students:

- Production or conversion of course materials into appropriate formats such as braille, audio, large font, and electronic version
- Transcription of braille assessments into print or vice versa
- Provision of digital recorders and Perkins Braillers to students
- Directing students to other specialized units for professional counselling needs.

The policy under scrutiny was designed for conventional learning environments so is likely not to be effective for online learning during the lockdowns resulting from the COVID-19 pandemic. Consequently, the Office of the Pro Vice Chancellor in charge of Academic and Student Affairs rolled out an Online Policy (UG 2020) which had the following insertion specifically for visually impaired students.

> For visually impaired students, the Team is ensuring that all materials that are put on Sakai for their respective courses have optical characters recognized to make them usable with a screen reader. Additionally, the Team has acquired remote access licenses for the JAWS and Zoom Text (Fusion) applications that will assist visually impaired students directly on their PCs. (par. 6–7)

Another laudable initiative by the Management of UG was an agreement with the two leading telcos in Ghana (MTN and Vodafone) to provide sim cards and free data for all students and staff. Besides, all activities of the Sakai LMS

were zero-rated. Other important initiatives included the training of faculty to teach online and the shift from summative to formative assessments.

AUC, on the other hand, was founded in 1919 as a premier English language university in Egypt chartered and accredited in both the United States of America and Egypt (AUC Egypt 2022a). The University has state-of-the-art facilities for advanced research, teaching innovation, life-long learning, civic engagements and infrastructural designs that are comparable to universities in developed economies. AUC has a total of 256 registered students with disabilities out of which 21 are visually impaired.

AUC already had in place the Blackboard LMS to augment face-to-face teaching which was leveraged for a fully online learning environment at the onset of the pandemic in 2020. The Information available on the University's website indicates that the LMS was to help schedule flexible learning times while accessing content, resources and useful materials (AUC Egypt 2022b). The Centre for Learning and Teaching (CLT) under the guidance of the Provost trained faculty and shifted teaching online in March 2020 to continue with instruction through the Blackboard LMS and Ponapto software during the COVID-19 impelled lockdowns (CLT 2020). The CLT proved to be agile as it anticipated the possible ramifications of the pandemic and trained over 540 faculty members in readiness for the online shift. Various text and video resources were made available on the University's website to assist students to get acquainted with the new paradigm. However, the visually impaired students are in the best position to determine the accessibility and usefulness of the information.

Like UG, the AUC emphasized alternative forms of assessment and lecture capture so students could view the recorded versions later for better assimilation. AUC instituted the Academic Accommodations for Students with Disabilities Policy which strongly emphasises reasonable accommodation. A Reasonable accommodation is defined in the policy as:

> A modification or adjustment to a course, programme, service, job, activity, or facility that enables a qualified individual with a disability to have an equal opportunity to attain the same level of performance or to enjoy equal benefits and privileges as are available to an individual without a disability (AUC Egypt n.d., 5).

Areas of the policy that touch on visually impaired students include *'Visual impairment that can result in difficulty in reading and writing, note-taking responding to visual aids and mobility around campus'*. Enshrined in the policy are 12 forms of accommodation AUC provides, out of which five are mainly for visually impaired students as captured on page six of the document as follows:

- Visual enhancements, such as magnified materials and textbooks
- Audio-taped lectures and Braille or electronic lecture notes and texts
- Verbal descriptions of visual aids and tactile models of graphic materials

- Braille lab signs and equipment labels, talking thermometers and calculators
- Computers with optical character readers, speech output, and braille screen display equipped with JAWS, Kurzweil 3000, and Dragon Naturally Speaking.

From the preceding, AUC has made more strides with the accommodation and availability of facilities for visually impaired students. However, the policies of both institutions were crafted before the pandemic came in mind, so it is imperative to ascertain their significance under the circumstances from the perspective of the visually impaired students.

Related studies on shadow pandemic in online learning

This section presents a review of studies conducted on the phenomenon under study. Due to the dearth of studies on visually impaired students studying online, I synthesized studies that relate to the phenomenon to elucidate the concept of the shadow pandemic in online learning. It is important to emphasize that shadow pandemic has mainly been ascribed to women and children who suffer violence and marginalization during pandemic lockdowns (Mutavati, Zaman, and Olajide 2020; UN Women 2021). However, Amy and Doka (2021) add a nuanced view that the unseen effects of the pandemic will leave people in a state of complicated grief. Furthermore, while 'pandemics' are bound to occur, it takes concerted efforts to deal with its 'shadows' (Okwuosa and Diamond 2021). The foregoing invites reconceptualization of the concept to better understand how it affects emphasise studying online and how their challenges could be ameliorated.

Furthermore, the International Labour Organisation (ILO) (2020, 2) cautioned that the advent of the pandemic was going to *'exacerbate the existing digital divide and widen inequalities for those who already face disadvantages in trying to access and engage in learning'.* Watts (2020) corroborates this by stating that the variations in the digital divide are more compelling under certain circumstances. This brings to attention the digital discrimination among different students and those with different forms of disabilities. For instance, Swan (2020) narrates how a blind student who could do his schoolwork independently hitherto the outbreak of the pandemic had to depend on his parents during the emergency remote learning period for same. The researcher describes the situation as oppressive while Shaheen (2022, 79) adds that such conditions deprived the disabled student of his autonomy *'because the technologies and instructional practices his school is using prohibit disabled ways of knowing and disabled forms of digital interaction'*.

It is significant to state that the first two assumptions of the A4E framework highlight how power structures create digital environments to be

oppressive and inaccessible for the disabled (Kafer 2013; Meekosha and Shuttleworth 2009). Considerations of such assumptions are strategic tools for removing structural, pedagogical and systemic barriers against these students. However, institutions that train visually impaired students are either oblivious or simply not paying heed to their needs and challenges. The CDC. (2019, par. 3) sheds more light on the gravity of the matter in the following statement, *'Often there are multiple barriers that can make it extremely difficult or even impossible for people with disabilities to function'.* The CDC also outlines seven common barriers that impede disabled students. Four out of seven common barriers that impede visually impaired students, according to the CDC are further elaborated. First is attitudinal barriers such as stigma, prejudices and discrimination normally manifest in stereotypical tendencies exhibited against the disabled.

Next is communication barriers where materials are presented in formats not comprehensible by the students. The other challenges are described as programmatic which refers to academic schedules that inconvenience the visually impaired students. It also refers to an instance where materials or digital gadgets are inaccessible to visually impaired students or when they are not given adequate time to complete their tasks. The last challenge is policy barriers which refer to the unavailability of policies or impediments in existing policies that impede the visually impaired students from [meaningfully] participating in online learning or from accessing needed facilities (CDC. 2019; Reyes, Meneses, and Melián 2022). This research advocates for a critical examination of the shadow pandemic in technology-mediated learning environments so strategies can be implemented and steps to circumvent them (Samuel and Bekele 2023; Shaheen 2022; Swan 2020).

Furthermore, empirical evidence from the United States shows that 60% of the students hardly benefit from computerassistive technology due to their low-level digital skills. In Ghana, 95% of such students reported having poor keyboarding skills and also had challenges with their school's JAWS software (Ampratwum, Nyadu Offei, and Ntoaduro 2016). In Wang's (2014) study, as high as 67% of participants indicated that owing to their mistrust of digital environments, they disclose their disabilities to instructors only when they see the need to be accommodated. Other studies found that some disabled students abandoned assistive devices due to technical difficulties, inadequate time to learn their usage, or malfunctioning gadgets (Roberts and Stodden 2005). Others also found the homepages or websites of institutions to be inaccessible, error-ridden or not user-friendly to visually impaired students (Agangiba and Agangiba 2019; Dai and Hu 2022). Seale et al. (2021) study in the US and four European countries reported poor design systems, lack of technical know-how and lack of 'digital social capital' as key challenges militating against visually impaired students learning online. Digital social capital is defined as the network of 'technological

contacts' and support that can be garnered from others to facilitate online learning (Seale 2013, 3).

Key challenges gleaned from the cited studies on visually impaired students include difficulty in communicating online and being undermined by instructors and peers. The students were also concerned that their disabilities could negatively impact their studies (Kotera et al. 2019). Cited studies that are solely dedicated to the experiences of visually impaired students studying online (Samuel 2021; Bekele et al. 2023; Armstrong and Murray 2007; Ferati, Mripa, and Bunjaku 2016) further revealed challenges such as non-involvement in decisions affecting visually impaired students, institutional unpreparedness, feeling of despair and helplessness and policy gaps. Others include visually impaired students having challenges accessing graphical materials (including plots, maps, charts, and diagrams) which are mostly not readable with the widely known adaptive technologies.

In sum, studies solely dedicated to visually impaired students remain very minimal. Most of such studies relate to the experiences of the students in conventional school settings. This dearth of studies on such a cohort of students learning online makes this study timely not only for exploring the issue but to whip other scientists' interest to engage on the phenomenon.

Theoretical framework

Theories of disability are distinct but are mostly derived from other fields which usually begin theorizing from disability perspectives but mostly do not end with same (Goodley et al. 2023). Shaheen (2022) realized this lacuna and stated that *'Theories from disability studies provide essential counter-hegemonic insight that exposes the underexamined assumptions, viewpoints and limitations of dominant theories of access'.* Shaheen's effort at filling the theoretical gap resulted in an interdisciplinary framework called Accessibility4Equity (A4E). A major strength of the A4E framework is the amalgamation of theories from different fields to strengthen interactions for human and non-human actors in learning environments that is equitable and accessible to disabled learners (Shaheen 2022).

Shaheen (2022) drew on six assumptions from the political relational model of disability (Kafer 2013) and the social shaping view of technology (MacKenzie and Wajcman 1999) to construct the A4E framework which makes it fit for exploring the experiences of visually impaired students in this study. First, disability does not reside in individuals but in the relationship among humans, built and digital architectures, cultural norms and power structures (Kafer 2013). Therefore, the 'problem' is not with certain bodies or minds, rather it is built in digital environments and the cultural patterns that perpetuate the oppression of those minds and bodies. Second, disability is not a monolithic experience as it is heavily influenced by one's intersectional

identities and the privilege or oppression that accompany those identities (Kafer 2013; Meekosha and Shuttleworth 2009). The third assumption is drawn from MacKenzie and Wajcman (1999) assertion that continual negotiations among human actors and environmental issues shape technologies. This is explained as technologies being value-laden tools encoded with human biases to solve political problems which end up prolonging long-standing oppression. The current research postulates that if impediments are still placed in the way of visually impaired students, then actors might still be viewing disability as monolithic and are not developing convivial technologies to remove all forms of oppression for such learners.

Shaheen's (2022) fourth assumption profoundly draws attention to an assertion by MacKenzie and Wajcman (1999) that challenges with access to technology are both human and technologic. Hence any attempt to fix technological challenges without recourse to the needs of users is a failure. The notion of access to technology being pluralistic, relational and context-dependent forms the basis of Shaheen's fifth assumption. The author highlighted the importance of multidimensional components of access as physical, intellectual, social and cultural (Goodley et al. 2019; Mingus 2011). The last assumption is drawn from Kafer (2013) who asserts that the ways of knowing and being, among the disabled are equivalent to the non-disabled. The last three sets of assumptions revolve around the thinking that conducive environments prevail, free of hegemony and ableism can enhance the capacities of people with disabilities for effective learning. This thinking aligns with Reiger's (2023) notion of deconstructing ableism and turning ableist architecture and designs (115).

Moreover, the A4E framework is built around three key elements which foreshadow *'the complex endeavour of constructing equitable technology-mediated learning environments'* (Shaheen 2022, 82). Shaheen (2022) connects each of the key elements of the framework to assertions that guided the formulation of the research questions for the current study. For instance, the first element, 'born-accessible', is connected with the assertion that equitable technology-mediated education is born technologically and pedagogically accessible. This connection emphasizes ensuring physical, intellectual and social access which makes learning environments accessible for visually impaired students. Shaheen (2022) further explains that legal frameworks and flexible pedagogical approaches are capable of privileging a born accessible learning environment where institutions make important decisions about inherent and auxiliary support for the students.

Concerning the second element 'cripped', Shaheen (2022) asserts that educators and visually impaired students should collaboratively 'crip' discourse and practice to disrupt hegemonic relationships that work against learners with disabilities. It is believed that critical examination of power structures in technology-mediated learning environments from a disability standpoint could

also help eradicate hegemonic relationships (Ellcessor 2015; Kafer 2013). The last element, individualised, identifies disability as intersectional. Naraian and Schlessinger (2017) asserts that disability is not a fixed state and that learning can be an interdependent enterprise for visually impaired students if they are provided with the necessary human and non-human support. Consequently, educators are encouraged to hone their pedagogical practices based on critical reflections so they can cultivate access to intimacy among their visually impaired students. Shaheen (2022) aligns the individualised element to the assertion that institutions should have the capacity to cultivate access to intimacy and swiftly respond to the individual needs of visually impaired students.

In a nutshell, Shaheen (2022) developed the A4E as an interdisciplinary and wholistic framework for scholars, practitioners and disabled people to collaboratively work towards disrupting oppressive systems rooted in ableism. The framework was purposely developed for disabled youth undertaking compulsory technology-mediated education in the United States which is a perfect fit to explore the shadow pandemic in the online learning experiences of visually impaired students in Ghana and Egypt. Also, I share in Shaheen's (2022, 90) conviction that the A4E framework provides fertile grounds for starting a complex social change to disrupt the unjust status quo and reimage technology-mediated learning environments as places of value and hospitable to disabled students.

Methods

The COVID-19 pandemic accelerated online learning as a global emerging practice that caused a shift in the way scholars conduct research. Given the shift, I opted for Konzinets' netnographic method which urges researchers to have an empathic understanding of their participants and advocate for them while objectively exposing the realities of their situation (Kozinets 2010). Samuel (2021) previous study brought out several challenges visually impaired students from Ghana faced while learning online. Hence, the current investigation builds on the earlier one to explore the phenomenon with participants from Ghana and Egypt. The adoption of the netnographic method follows the work of Devkota (2021) who successfully applied it in Nepal to explore the inequalities between the rural, socio-economically disadvantaged and urban well-to-do higher education online learners.

Recruitment and participants

The researcher used convenience sampling to select UG and AUC due to his professional affiliation to both institutions. Netnographers use search engines to reach their sample units (Kozinets 2010) which made it safe in the face of the pandemic. Participant recruitment for UG started when I officially applied

to the OSSN with details of my research, interview protocols and a request for the contact details of registered visually impaired students. I then emailed the visually impaired students and followed up with phone calls which attracted seven volunteers to be interviewed for this study.

Similar processes were followed at AUC. After the Institutional Review Board had granted me clearance to conduct the study, I officially notified the Centre for Disability Services (CDS) regarding the purpose of my study and requested assistance to reach the registered visually impaired students in the institution. The unit emailed my request to the visually impaired students for those interested to contact me. Five visually impaired students from AUC participated in this study which brings the total number of participants to 12. There were four males and three females from UG while all participants from AUC were males. All participants from UG were undergraduate students majoring in Social Science related courses and their counterparts from AUC were made up of two graduate and three undergraduate students majoring in Humanities related courses. Two AUC students had low vision but explained that they were officially classified as totally blind because they could identify blur objects and not the actual items. All other 10 participants explained they were totally blind.

Data collection

The data collection consisted mainly of primary data from the visually impaired students and documents (institutional policies) found on the institutions' websites. Bartl, Kumar Kannan, and Stockinger (2016) advice on the need to develop detailed interview guides so netnographers can qualitatively find patterns in the field data, guided me to frame three research questions grounded on the elements of the A4E framework. I designed a semi-structured interview guide that contained three questions that elicited responses on the biodata of participants and 16 that explored their experiences with online learning. Four telephone and three WhatsApp interviews were held with the UG participants in August and September 2021. Interviews with participants from AUC took place in February and March 2022 through the Zoom platform. All interviews lasted roughly 40 min, were conducted in English and audio or video recorded with the permission of the study participants. Secondary data were gleaned mainly from the disability policies of the two institutions which were found on their websites. Snapshots of the documents have been presented earlier under the 'Online Learning at the Study Sites' session of this study.

Analytical framework

All audio and video recordings from the interviews were uploaded on the Temi automated speech-to-text software for word-for-word transcription. The

transcribed data were downloaded and read severally while comparing with the audios and videos to be sure nothing was missing. I opted for netnographic analysis which highlights the importance of using software and manual methods to evaluate data (Kozinets, Dolbec, and Earley 2014). Hence, I meticulously read through the transcripts to familiarize myself and identified common concepts and codes that emerged from it. The data was then uploaded into a Microsoft Excel Spreadsheet which helped to generate patterns of meaning. After which I manually used the codes as guides to aggregate the patterns into themes which are discussed in the next section. The research questions for this study guided me to categorize the themes under three categories namely, *born technologically and pedagogically accessible, collaborative cripping discourse, and support that enabled the visually impaired students to study online*.

Ethical considerations

The studied institutions granted me clearance before I embarked on this study. Secondly, participation in the study was voluntary and participants signed informed consent forms before each interview. Also, due to concerns with data obtained online in netnographic studies, I assured participants of strict confidentiality and anonymity. The recordings of all interviews were sent to each participant for member checking and for them to sanction the use of their data. Lastly, the use of technology for data collecting aligns with the universities' policies on strict adherence to COVID-19 protocols before, during and after the COVID-19 lockdown.

Results

This study aimed at exploring inherent challenges faced by visually impaired students who studied online in one Ghanaian institution of higher learning and one from Egypt. The results were discussed in the context of the A4E framework and the literature with support from anecdotes from the study participants.

Born technologically and pedagogically accessible

Dimensions of accessibility

Institutional accessibility connotes how easily the institutions can be reached either through physical or technological means. In Goodley's (2019) estimation, institutions should provide the multidimensional components of access to their students. Students in studied institution showed physical awareness of their institutions but only two of them had experienced their LMS prior to the outbreak of the pandemic. In this regard, a participated shared, *'I know*

my university has been using Sakai for ages, but we never experienced it until the lockdown' (UG 2). Similarly, another from AUC recounted, *'Blackboard has been there for many years, not too sure of when, but only the COVID* [-19] *caused some of us to use it'* (AUC 4).

Based on the field data, both institutions have well stocked laboratories with specialized computers and assistive devices including screen readers and braille printers. However, only visually impaired students from AUC were privileged to borrow and use the devices outside campus for a period. A participant explains, *'Before the lockdown, I could just register and bring any assistive device home for as long as I would need it but when we needed them most, we were not permitted to step out of our homes'* (AUC 5).

In addition to the above, both institutions provided licensed JAWS software for all the visually impaired students, which was helpful according to the participants. However, the students' low level digital literacy caused usability challenges. For example, a student from UG stated, *'I'm still learning to type on the computer and navigate the Sakai LMS. I'm always behind in learning'.* Another from AUC also reflected, *'I was unable to access announcements and other information most of the time'.* Such a situation amounts to some level of intellectual and social inaccessibility (Shaheen 2022) due to inaccessibility and usability challenges the students faced in a difficult period of their studies. The communication cut off could also compound their challenges.

Legal frameworks

Legal frameworks are to ensure equitable education while their absence negatively impacts students' learning (Reyes, Meneses, and Melián 2022; Shaheen 2022). Evidence from the field data showed that both institutions had disability policies though only four out of the 12 students were aware of these policies. Those who expressed knowledge of the policies thought they were generic and not tailored for online learning. A sample of the participants' views are represented as follows:

> I don't recall any policies for online learning. I mean I don't recall, at least in my case, special policies for online learning. I think they adapted the normal [face-to-face] one for online learning. (UG 2)

> Actually, AUC provided an accommodation letter during the online mood, but also, uh, during face-to-face structure too. So, I guess it's just an attempt to apply what has facilitated face-to-face to online. (AUC 4)

The participants' perspectives align with my analysis of their institutions' policies (under the 'Online Learning at the Study Sites' section) which established that the disability policies of the institutions were not designed for online learning. Insertions were made in the policies in the heat of the pandemic challenges so these policies could pass for transitional ones.

Instructor pedagogical approaches

Shaheen (2022) identifies flexible pedagogical approaches as an important step in providing learner access. In my interaction with the visually impaired students three from each institution each revealed that a few instructors' accommodation in their online classes. For instance, a UG student reflected, *'It was always great to be on Zoom to hear our lecturers teach and explain issues to us'.* Another from AUC added, *'The greatest part was when some professors explained every video or diagram they showed during* [online] *classes'.*

The above are reflections of positive intellectual and social accessibility strategies narratives reflect a pleasant situation where instructors provided intellectual and social accessibility to the visually impaired students through effective accommodation practices (Mingus 2011; Shaheen 2022). Nonetheless, that represents the voices of three out of the 12 participants in this study. The majority expressed dissenting views which reflect their disaffection for the pedagogical approaches adopted by their instructors. The following narratives summarize the general experiences of the participants:

> Hmmm! They taught us just as they did in the past. The lecturers sometimes shared videos, images or run through calculations without recognizing that some of us can't see. They simply forgot there is a silent minority in their class. (UG1)

> Yeah! So mere lecturing for me is not helpful as a blind student because I need to be engaged. I need some people not to be monotonous and so on. I think the best strategy was group discussions, uh, and presentations, but some professors were not able to insert such good strategies. (AUC 2)

Besides the above challenges, others added that a few instructors shared materials in formats that were not compatible with their screen readers. In such instances, access is provided but usability remains a challenge.

Collaborative cripping discourse

Lopsided cripping relationships

Shaheen (2022) conceptualizes cripping in the context of inclusive education as collaborative efforts between abled and persons with disabilities to break hegemonic barriers. Interestingly, both Ghana and Egypt have in place global and national policies to ensure crippling. However, the decision to shift learning online was lopsided at both universities as participants averred that they were not consulted before. Reflections that sum up the views of the participants are shared in the following statements, *'We were not consulted. I think the shift was radical for all, so we didn't have any option, or other options other than online learning'* (UG 4). Another student shared,

> This was the decision by the government and by the university. It's not about consulting students. It was about the pandemic. We did not have any choice. (AUC 1)

Furthermore, my review of the websites of the universities showed that they both posted several announcements in respect of the shift. In addition, AUC added videos with voiceovers on how to succeed in online learning but the participants in unison indicated they were not informed of the shift. This is unsurprising as institutions continue to misconstrue accessibility as usability. This is summed in this assertion by a UG participant, *'We missed many announcements because they were not enabled to be read to us on our gadgets'.*

Shadows in the sociotechnical context

Sociotechnical contexts refer to the interaction between the visually impaired students and relevant others, and technology. Such interactions are expected to be guided by mutual respect, but the visually impaired students enumerated challenges such as stereotyping and hostile behaviours exhibited by some of their abled mates and instructors. On this, a participant shared, *'I have had friends all the time in school but occasionally, you come across a few who don't want you to be close to them. They think we don't belong here* [the institution]' (UG 6). Others shared their frustration with their inability to be recognized by their instructors.

> *I think online interaction with colleagues is a bit harder than physical learning in class because it wasn't friendly. You struggle to raise your hand* [virtually] *but the professor never invites you to contribute so you never get to ask questions or contribute to discussions. Sometimes you feel so ignored.* (AUC 3)

The above are manifestations of hegemonic relationships found in online learning environments and work against the visually impaired students. To compound the challenges of the visually impaired students, some instructors refused to share recordings of lecture sections with the visually impaired students. One of the institutions (anonymized due to the sensitivity of this case) had to intervene before an instructor granted a visually impaired students' permission to record the lectures. This is how a student crystalizes the incidence, *'The professors didn't allow blind students to record* [lectures] *because of the privacy of other students. So, this clashed with our rights'.*

Obviously, the shadows in the visually impaired students online learning experiences could be telling. The narrative in the following statement sums up their experiences.

> To be honest, it was very stressful for me because it was a new thing I had to adapt. I lost the sense of learning because joining classes from home is different from being present in class where you are ready and prepared for discussions and you meet mates and professors. This was a bit stressful as it increased my psychological suffering. Like it makes you go into depression sometimes. (AUC 3)

The studied institutions may not be blamed for the unhealthy relationships due to the radical nature of the shift and the toll the pandemic has

had on individuals and institutions globally. That notwithstanding, the situation portrays the attitudinal and programmatic barriers exhibited by abled persons against those with disabilities (CDC. 2019, Kafer 2013; Rieger 2023) and privileges swift action from all stakeholders to reverse the situation.

Following the above, it is worrying to note that a few professors refused to share recordings of lecture sections with the visually impaired students even upon request. This resulted in one AUC student reporting to the CDS to intervene before a professor granted his request. In a similar situation, a student expressed, *'The professors didn't allow blind students to record* [lectures] *because of the privacy of other students. So, this clashed with our rights'.*

The narrative shared in the following statement sums up the experiences the visually impaired students had due to the treatment meted out to them by some of their mates and instructors.

> To be honest, it was very stressful for me because it was a new thing I had to adapt to. I lost the sense of learning because, you know, I'm joining classes from home. It's different from being present in class where you are ready and prepared for discussions and you meet mates and professors. This is a bit stressful for me and it increased my psychological suffering. Like it makes you go into depression sometimes. (AUC 3)

Support for visually impaired students studying online

Amy and Doka (2021) accentuated that non-death losses that accrue from the pandemic lockdowns could amount to complicated grief including health anxieties and traumatic stress. These could be likened to a shadow pandemic in online learning and call for effective support from both human and non-human sources (Naraian and Schlessinger 2017). In this regard, students from both institutions accepted they enjoyed some support in the virtual space. One student joyfully noted, *'My lecturers always gave me extra time to complete my assignment'* (UG 1). Another added, *'Some of my professors understood my situation so they extended the time for me to complete assignments any time I requested'* (AUC 2).

Besides, the visually impaired students appreciated the occasional one-on-one virtual sessions some instructors allowed to explain issues to them. Participant (AUC 4) shared, *'Two of my professors always scheduled sessions with me after classes to discuss my difficulties'.* From the other institution, a participant recorded, *'A few lecturers agreed to engage me on phone so we discuss issues I couldn't understand in class or to give me a summary of what they studied in class if I missed'.*

Additionally, while the visually impaired students from AUC confirmed having prompt responses from the CDS, those from UG indicated the response turnaround time from the unit set up to assist them was not very prompt. This is reflected in a UG student's narrative, *'I used to receive prompt attention*

from the office before Covid but since we went online it takes a long time to receive feedback'.

From the foregoing, it cannot be denied that there were some forms of support available to the visually impaired students in the studied institutions. However, gaps in the support systems had an impact on them. What is shared below portrays the context of most of the visually impaired students psychological and emotional state at the time:

> I was often depressed. I went to a psychiatrist to be able to bypass those moments. Also, what I did was try and increase communication with my professors to clarify anything I was not able to deal with in class. (AUC 2)

Discussion

The aim of this study was to explore the challenges visually impaired students from a Ghanaian and Egyptian higher education institutions face and the results are discussed in this section. The first theme, *born technologically and pedagogically accessible,* revealed that both institutions had units dedicated to assisting students with disabilities, well-stocked laboratories with assistive devices. It is a plus that the studied institutions align with Shaheen's (2022) advocacy for accessibility in virtual space. However, it was clear that physical accessibility had been catered for concerning key challenges with digital aspects of accessibility. This situation was exacerbated by the lockdowns as students' students in both countries were prohibited from stepping out of their homes to use digital gadgets provided by their institutions. This gives proof to caution by the ILO (2020) and Burgstahler's (2015) that the pandemic was exacerbate existing digital divide and widen inequalities for disadvantaged people.

The study identified that, unlike visually impaired students from the UG, those from AUC were privileged to borrow digital gadgets from their school. This arrangement was curtailed by the travel restrictions during the lockdown. In essence, students from both institutions who did not own digital gadgets, assistive devices and software were cut off from learning and communication. This situation amplifies the shadow pandemic in such times (UN Women 2021) and could result in complicated grief for the visually impaired students (Amy and Doka 2021).

Shaheen (2022) asserts that one strategy for constructing equitable technology-mediated learning is the provision of policy frameworks. However, a lacuna was identified in the studied institutions as only a handful of the visually impaired students accepted knowing their schools' online learning policy. Those who claimed to know of the policies referred to the policies as transactional. The reason is that their institutions made insertions to their existing teaching policies in the heat of the pandemic. Such a lack of policy frameworks leaves people to act based on their discretion which could

negatively impact the visually impaired students (Samuel and Bekele 2023; CDC 2019; Shaheen 2022).

Though five students of the visually impaired students appreciated the extra time and one-on-one sessions some instructors arranged with them, the majority felt otherwise. The latter group lamented that the instructors virtually ignored them during online classes while they also refused to share recordings with them while disallowing them to record for future review. In the words of Seale et al. (2021), the former group benefitted from digital social capital, while the latter did not. The latter group faced structural, pedagogical and systemic barriers which are detrimental to their efforts to learn online (Samuel and Bekele 2023; Kafer 2013; Kwapong 2022). Such situations should be addressed promptly so the visually impaired students can have meaningful learning experiences.

Analysis of the second category, *collaborative cripping discourse,* revealed both studied institutions did not involve the visually impaired students or informed them of the decision to shift learning online. In the A4E theory, Shaheen (2022) explains the need for collaborative discourses between the abled and those with disabilities. However, decisions to shift learning online were on the blind side of the visually impaired students which amounts to some level of inequality. This coupled with their low digital skills led to some of them being cut off from accessing information circulated by the institutions. As Naraian and Schlessinger (2017) notes, such students did not benefit from non-human support. It is, however, important to note that the AUC was ahead of the UG in terms of information sharing. The AUC used more varied forms of information including videos in addition to the textual ones both institutions shared. Despite these efforts, both institutions could not [adequately] reach the visually impaired students based on the challenges already shared. According to Seale et al. (2021), technical challenges or lack of access to digital gadgets during the emergency period worked against such students. As cautioned by Mutavati, Zaman, and Olajide (2020), such challenges ought to be arrested before shadow pandemics' metamorphosis into human rights pandemics.

Moreover, this study discovered that the shadows that impinged the visually impaired students from effectively participating in online learning were profound. They felt some of their instructors and peers had exhibited ableist and stereotypical behaviours towards them. Besides, some felt their disabilities could prevent them from achieving their academic goals. From the foregoing, it is evident that in technologically driven learning environments, denial to access is not always technologic but human factors play a key role (Samuel and Bekele 2023; MacKenzie and Wajcman 1999). This draws attention to Kafer's (2013) assumption that persons with disabilities have the same capabilities of knowing as their abled counterparts, but impediments placed in their way could prevent them from fully achieving desired learning. The challenges of the visually impaired students in the current study are akin to research findings

that digitization has exposed the differences among persons with the same or varied forms of disabilities (Burgstahler 2015). To overcome this reality, there is the need to accept and remove the shadows stifling their attempt to learn by constructing equitable technology-mediated learning environments as proof of enhancing the institutions' capacity for access intimacy among the visually impaired students (Okwuosa and Diamond 2021; Shaheen 2022).

The last category was *Support for Visually Impaired Students Studying Online*. An exploration of this category revealed that the main forms of support the visually impaired students benefited from was the individualized attention they received from some instructors. This was by way of one-on-one discussion and extra time to submit tasks. This represents what Shaheen (2022) terms intellectual and social access. The author further opines that such collaborative efforts can disrupt ableism and hegemonic relationships in online learning.

Given the foregoing, institutions are urged to provide direct interventions and therapeutic support in virtual spaces for individuals as other factors apart from learning trigger depression during emergency times (Amy and Doka 2021). The analysis revealed that the unit in charge of supporting visually impaired students at AUC was prompt in providing feedback that their counterparts at the UG.

Conclusion

This study contributes to inclusive education discourse in several ways. First, research dedicated to visually impaired students learning online is yet to be given attention so this study which explored the challenges of such students in Ghana and Egypt could trigger wider interest in the field. Secondly, the concept of the shadow pandemic used to mirror the experiences of the students helped to explore and present the realities from the perspectives of the 12 participants in this study. The study adopted a nascent framework (A4E), which combines multiple perspectives from social and political fields, to shape the research questions and discussions of the three categories and six themes distilled from the field data. The analysis of the field data revealed multiple shadows in the online space prevented the visually impaired students from having meaningful learning experiences. It was evident that the studied institutions had policy frameworks guiding instructions but the policies were designed for conventional learning so insertions made during the abrupt shift made them transitional policies which could not sustain effective online learning. To ensure equitable online learning for all students, there is a need for agile, flexible and futuristic policies that will compel instructors to adopt flexible pedagogical approaches to accommodate and optimize the learning experiences of visually impaired students. This will also be a response to ensuring complex multi-layered forms of accessibility for all manner of students. Contrary to Shaheen's (2022) A4E framework, decisions to shift learning online were lopsided and quite detrimental to the academic progress of the visually impaired students. Besides,

there were a few instances of ableism and stereotyping against these students in the socio-technical context. To halt such challenges in online learning, the management of institutions are encouraged to strategically collaborate with affected persons. This will help tailor effective policies and their implementation would equally be effective.

It is important to add that the visually impaired students were also prevented from benefiting from digital social capital (Seale 2013) in the times they most needed it to brace the shadows of online learning. Therefore, a few of the visually impaired students were depressed and resorted to external entities for psychological and counselling support. Apart from policy and training to prevent others from undermining such students, there is a dire need for effective virtual therapeutic services that are always accessible to students.

Though novel, the restrictions placed by the pandemic constrained the recruitment of participants. In all, only 12 participants from the two institutions were interviewed for this study. Larger-scale research combining multi-methods could be launched to explore other dimensions of the experiences of these students in different contexts. There is also the need for continuous professional development among instructors on ways of accommodating students with disabilities in their online classes. Lastly, research is needed on the forms of training offered to instructors and how they impacted their online instructions.

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