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Inclusive assessment practices and their application in the inclusion of students with visual impairment in higher education in Tanzania

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Abstract

The agenda for inclusive education cannot be fully realised if inclusive assessment is ignored by education systems and its practitioners. This was a qualitative study that investigated the inclusive assessment practices employed for Students with Visual Impairment (SwVI) in one selected Tanzanian higher education institution. Using an intrinsic case study design, the study answered two main research questions on what assessment practices were used when assessing SwVI and how the assessment practices were applied. Twenty participants (20) were purposively sampled to participate in interviews, and focus group discussions. Thematic analysis was used to make sense of the data. The findings revealed that there was adequate effort made by the higher education institution under study to use a variety of assessment methods to meet the needs of SwVI. Despite these efforts, students encountered a number of challenges in the application of some assessment practices. Among the main challenges was the failure of some students to read braille grade 2 and the lack of skills to use technological devices such as computers in assessment, even though computers were available. The university management should organise training programmes for SwVI in braille grade 2 and on how to use computers in assessment.

Keywords

Assessment practices, inclusion, stakeholders, students with visual impairment, visual impairment.

INTRODUCTION

The impact of educational assessment in the teaching and learning process cannot be underrated, as it improves learning styles of students and teaching techniques of educators [1]. Educational assessment, as argued from the perspective of this study, can be inclusive to all students if it bears the capacity to enable them to demonstrate what they know on an equal basis. Previously, students with disabilities, including SwVI, were exposed to assessment practices which corresponded to their educational needs in special schools because there were specialist teachers to support them [2].

With the advent of inclusive education, all students with disabilities were supposed to learn alongside their peers without disabilities [3]. However, many inclusive schools do not have specialist teachers, yet the Salamanca statement of 1990 underscores the obligation of institutions to accord services to people with disabilities in the same way as their peers [3]. Notwithstanding the advantages of inclusive education, if serious

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steps are not taken to enhance SwVI's access to assessments, inclusion in the process is flouted. One of the means to enhance inclusion for SwVI in the assessment process is through providing extra support [3]. Extra support may be provided through adapting the assessment practices used for SwVI. Though adaptations should involve competent staff in special needs education [4] for them to be user-friendly. Non-specialized educators in special needs education found it difficult to assess SwVI in educational institutions that had not employed staff specialized in special needs education for visual impairment [5], [6]. Thus, the role of specialised staff in special needs education in inclusive schools should be cherished since they help in braille transcriptions and advisory services to educators on how to meet the educational needs [7], [8].

One of the forms of adaptation was through modifying questions that included diagrams, tables, and charts, where these diagrams, tables, and charts were omitted and replaced with descriptions [9], [10]. In cases where it is difficult to convert these drawings into descriptions, alternative questions are recommended [5], [11]. Other forms of inclusive assessments noted are the use of braille and oral formats, tape recorders, large prints of varying sizes and amanuenses used to read questions for SwVI and write oral answers down [2], [9], [10], [12], [13]. Furthermore, special examination rooms for SwVI are allocated as they provide them with a conducive environment which enhances their ability to perform tasks well, like the room with computers and proper lighting [8], [10], and reduce disturbances to their peers due to noises produced by braille machines [14]. Concerning the additional time, differences are noticed in implementing it in examinations; some educational institutions provided fixed extra time to all SwVI regardless of their differences [10], [11], while others accorded SwVI extra time depending on their degree of vision or nature of the subjects [9], [15].

Currently, the use of advanced technologies like computers is becoming an equaliser in different areas of education for SwVI. Muzata [2] noted that the use of computers promoted independence for SwVI in completing different assessment tasks without relying on their peers. Unlike in developed countries, in developing countries, SwVI aspire to apply advanced technologies like computers, but they find themselves settling for using traditional methods like Perkins Braillers due to lack of computers and training programmes on how to use these devices [6], [10], [16].

Simui et al. [17] and Muzata [2] underscore that assessment for SwVI has been a challenge in many educational institutions. These challenges are rampant both in developing and developed countries. Studies conducted by Hewett et al. [9] found that SwVI in universities in the United Kingdom suffered significantly from inaccessible assessment practices. The same was revealed in developing countries like Rwanda and Zambia, where SwVI were exposed to assessment practices that were exclusive in nature [17], [18].

This gap is prevalent too in Tanzanian educational institutions as well. Studies by Nuru [15] and Lugome [19] revealed that SwVI encountered some hurdles in assessment practices in primary and secondary schools, respectively. The same is reported in higher education where SwVI are exposed to various assessment practices that are exclusive in nature [5], [16]. Regarding the status of assessment practices for SwVI across educational institutions in Tanzania, their suitability to SwVI seems to be questionable.

Statement of the problem

From the extant literature, there are assessment practices which are regarded as inclusive for SwVI like the use of adapted examination formats (braille, enlarged print and oral formats), allocation of special examination rooms, additional time, braille transcription and the use of computers among others. Some studies (see [6], [14], [19]) focused mainly on exploring inclusive education and its implementation in general, leaving a gap in how various assessment practices are applied in assessing SwVI. While studies that were focused on the assessment process, limited themselves to establishing barriers faced by students with disabilities, including SwVI [15], [16], a research gap was observed in how inclusive assessment was practiced in a university implementing inclusive education. This study relied on the assumption that SwVI had unique educational needs that required individualized support. Therefore, this study aimed to fill this knowledge gap by identifying the inclusive assessment practices available for SwVI in one public university and examining their suitability for each student with a visual impairment.

Research questions

The following research questions guided this study: (RQ1) What inclusive assessment practices are commonly used in assessing SwVI in the selected public university in Tanzania?; (RQ2) How are the inclusive assessment practices applied in assessing SwVI in the study public university in Tanzania?

RESEARCH METHOD

This study adopted a qualitative approach and an intrinsic case study design to explore the inclusive assessment practices used on SwVI in a selected public university in Tanzania. The intrinsic case study design was employed as it allowed participants to provide views on the phenomenon under study from the natural setting [20].

The study purposively selected 20 participants (7 lecturers, 14 SwVI and 1 transcriber) in the study public university. The criterion sampling technique was adopted to select the sample, whereas only lecturers that had a course(s) which consisted of SwVI with a minimum of two years' experience of assessing SwVI were included. Braille transcribers that participated had 2 years of experience dealing with the assessment process for SwVI, while the SwVI included the blind and those with low vision.

This study used interviews, and focus group discussions (FGDs) guides, to generate data. Semi-structured interviews were used to generate data from lecturers and transcribers, while FGDs were used with two groups of SwVI. The first group of FGD consisted of 7 second-year SwVI, while the second FGD consisted of 5 third-year SwVI. The groups were organised to allow for homogeneity that creates a free environment to debate the topic of the study.

Data were analysed thematically by familiarisation, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report [21]. Transcribed transcripts were read and reread to allow for familiarisation. Codes were generated, and theme groups were later refined and named to answer the research questions. Prior to participant recruitment, ethical clearance was sought from the University of Zambia Ethics Committee of the School of Humanities and Social Sciences. The ethics approval number given for the study was HSSREC IRB No. 00006464. In the field, information sheets were shared with all participants, and informed consent forms were signed to ensure voluntary participation in the study. Confidentiality was strictly maintained during the data collection process and report writing. The personal identities of all participants were not disclosed in the reporting. Pseudonyms were adopted such as SwVI for SwVI, and LR for Lecturer. Other pseudonyms reflected the focus group discussions.

RESULT AND DISCUSSION

The findings of this study revealed a myriad of themes reflecting the practices in the assessment for SwVIs in higher education in Tanzania. Research questions guided the presentation of the findings.

Data for the two research questions has been presented and discussed simultaneously according to the way participants reported. From the findings, there were various practices employed by lecturers when assessing students during examinations, tests or assignments. The practices included the use of braille, large print, oral testing, additional time, allocation of special rooms, use of assistive technology, transcription and adaptations. Although these practices were employed, they were mirrored with challenges, which compromised the practice of inclusion for SwVI in higher education.

Use of braille format

Braille Grade 2, also called contracted Braille, was commonly used when assessing the students. In this practice, question papers were embossed in Braille on both sides of the paper. Although a few participants were comfortable with this practice, the majority were not and recommended using Braille Grade 1 embossed on one side only to enhance their ability to grasp the questions. This was raised because not all SwVI possessed sufficient mastery of braille grade 2.

> *LR2: …others think that all students who are blind know Braille well, but I have come to discover that some of them do not know well, be it braille grade 2 or one, or whatever….*
> *FGDA5: It's challenging to master braille grade 2 for SwVI from inclusive schools since to them braille prints are taught only in lower levels…. they reach higher education without having required mastery in Braille grade 2.*

Though provision of braille format to SwVI in the assessment process is recognised as one way of inclusion [2], [9], [10], the study findings revealed something different. Submissions made by participants revealed that SwVI sometimes experienced poor performance due to challenges in using the Braille format. Understanding questions presented in Braille Grade 2 embossed on both sides of the paper required students to have a high level of mastery in Braille and heightened sensitivity in their sense of touch. Thus, to enhance inclusion whenever braille format is used, students' preferences and ability in either braille grade 1 or 2 should be considered. The inability of SwVI to read Braille Grade 2 is concerning because it is both economical and more advanced for higher-level students, such as those in higher education. Braille Grade 1 is designed for lower levels and represents the early stages of learning Braille [22]. This challenge suggests that SwVI entering universities are not adequately prepared in Braille Grade 2 to support their effective inclusion. The preference for Braille Grade 1 would not be sustainable, as students are required to learn Braille Grade 2 for advanced learning to manage the increasing volume of academic work. In this case of the current findings, other inclusive practices such as oral reading for students would be helpful to mitigate failure.

Additionally, the challenges in braille format appeared to be aggravated by novice transcribers who prepared examination papers for the students, reports from FGDs revealed. This concern was raised by FGDA1.

> *FGDA1: The embossing machine is always set in English Braille grade 2, this increases confusion when the converted passage is in Kiswahili language. As a result, we fail to understand questions since contractions in Kiswahili braille have different meanings from that of English Braille.*

We note from the findings that Kiswahili Braille is quite different from English Braille, especially in Braille grade 2. So, during the conversion of nglish text into Braille format, the transcriber is expected to command the embossing machine to use English Braille rather than Kiswahili Braille, as the text is in English, not Kiswahili. Although such mistakes by transcribers have been observed, a crucial area for further research is whether there is an influence between Kiswahili and English in relation to Braille transcription. Tanzania uses Kiswahili as the official language of communication and instruction in primary school, while English is used in secondary school until students reach university. Language competence may also affect clarity of questions transcribed for SwVI. While the concern about incompetent transcribers may be valid, the language issue could significantly affect the transcription of work into English, especially since many users may be more fluent in Kiswahili than in English. This situation warrants further research.

The use of large prints

Findings indicated that students with low vision were provided with question papers in large print format. It was narrated by participants that font sizes which were commonly used ranged from 16 to 18.

> *LR5: Specialists told me to use 18 font size... I remember one day I said it is 16 font size, they said to me, no, it is 18 font size. So, this font size is the recommendation from the transcribers.*
> *LR3: …So far, we just give them either 16 or 18 font sizes for all of them. Because this course is studied by all first-year students, for easy preparations, we just produce one size for all.*

The analysis of the excerpts under this subtheme indicated that students were subjected to varying font sizes, which made them uncomfortable as these did not align with their recommended reading sizes. According to Muzata [2] and Ndume [10], SwVI were unique because their degrees of visual impairment varied, meaning that different degrees required different accommodations. Providing all students with low vision with large print materials limited to font sizes 16 and 18 was another form of exclusion for some students who could not benefit from the given font ranges. There are some SwVI with mild or severe degrees of visual impairment who may need font sizes which do not fall between 16 and 18. People, especially educators, need to be sensitive to the varying needs of SwVI and also need to be sensitised to acknowledge students' differences so that they are supported accordingly. The biggest concern

for educators in the inclusion of students with disabilities is to leave no one behind.

The use of oral testing

The other practice employed in the assessment of SwVI students was oral testing. This is where questions are read to the students and students answer by use of braille. Oral testing was done where braille and large print formats were hardly available. It was carried out in different ways: sometimes, respective course lecturers read out questions to SwVI, who answered orally, and the lecturer marked them immediately. In other cases, a respective course lecturer or transcriber read out the questions for SwVI, who then wrote and answered them in Braille.

> *TR1: But this is also common for SwVI in other colleges where transcribers are not present. So, they find themselves inconvenienced taking their assessment tasks to the College of […hidden] where transcribers are. As a result, they opt to read questions for SwVI, and sometimes SwVI are subjected to provide oral answers.*

The same view was echoed by a student in FGDs who explained:

> *FGDB1*: *On my side, when I was in my first year of studies, lecturers tended to read test questions for me where I answered orally in turn. But in the second and third year, improvement was made as lecturers read out questions, and then I wrote those questions in braille and answered the same in Braille too*.

Verbatim excerpts from TR1 and FGDB1 are consistent with what Kisanga [16] found. Nonetheless, the inclusivity of this practice is doubted. Participants lamented that oral testing is no different from interviews where thinking is not given enough time. The participant further opined that answering questions orally in front of their lecturers interfered with their confidence, a thing which contributed to providing poor answers. It also did not provide skills for independence in handling their academic tasks. Moreover, this practice was reported to be more challenging when the readers were non-specialist lecturers. This was claimed by participants who said:

> *FGDA7: Oral examinations are bound with many challenges: firstly, they are offered as an interview... So, as the respective course lecturer reads out the questions, a student needs to think quickly to cope with the speed of the reader. Sometimes students lack confidence to ask the lecturer to reread a question….*
> *LR1: The lecturer reads for the SwVI … some lecturers are not tolerant, if you are reading a question to that student, and the student keeps on asking, "Please may you read again...*"

The foregoing statements call for the improvement of this practice if SwVI are to benefit from it. Educational institutions should adopt the use of specialist amanuenses as revealed in the studies by Morris [13] and Hewett et al. [9]. Furthermore, technological devices could be employed, allowing SwVI to use computers and other assistive devices to listen to questions through screen-reading programs and record their answers, which would later be transcribed. According to Muzata [2] advanced technologies are recommended to bring transformation in the assessment practices for SwVI who use them.

Giving additional time

In interviews and FGDs, participants unanimously noted that a fixed time of 10 minutes was added for every hour of the normal duration of tests and examinations. This time was not flexible because some students were still unable to finish within the added time.

FGDB1 expressed gratitude, stating, "*I am very grateful that the additional time is sufficient for me to complete tests and examinations like others*," while on the contrary, other participants said added time was still not enough, "*To be honest, the time added is not enough for me since I struggle to complete tests and examinations*…."

The finding on flexibility in additional time was not in line with the findings from studies by Hewett et al. [9] and Nuru [15], where the time added for SwVI was flexible depending on the nature of visual impairment and the courses offered to them. The aim of any support provided to SwVI was to enhance their learning, but when the support failed to achieve this, inclusivity was compromised. Time addition should not be fixed [10], [11], for inclusion to be real to each individual student with visual impairment.

Writing from a special room

Findings revealed that SwVI were allocated special rooms where they wrote tests and examinations from. LR5 said, "*In our college there is a special room allocated for them where there are specialists... And usually there is an allowance of some more extra time for them*." A transcriber added:

> *TR1: But also, some of them when they stay in the general examination rooms with their peers, once they face any challenge relating to their educational needs it becomes so difficult to help them there.*

Special examination rooms for SwVI were regarded as a good inclusive practice because facilitating the educational needs of SwVI was made easy and possible. Secondly, machines used by SwVI during examinations and tests were very noisy, thus a separate room was a good remedy. Further, the allocation of separate rooms prevented emotional or psychological disturbances that SwVI would incur as the result of their peers' movements outside the examination room when their duration was over. This resonates with the findings of some studies (see [8], [10], [14]). Though the target of inclusion is to make every way possible for students with disabilities to learn together, the case is different when it comes to assessment although in some developed countries, technology in assessment has overcome this gap. According to UNESCO [3], in rare cases where it is challenging to accommodate students with disabilities in regular rooms, a separate room would be an exception. Despite the usefulness of this practice, it had a challenge where different students with different degrees of visual impairment were mixed in one room. For instance, one participant says as follows:

> *FGDB4: Though we are of different degrees of VI, we are mixed in the same room during examinations. For example, I have low vision, I only use large prints in all my examinations, but noises from Braille users disturb me a lot.*

The quotation implies that for the allocation of special rooms to be inclusive for all SwVI, improvements should be made by assigning different rooms to students using Braille machines and those using large print materials.

Use of assistive technology

During assessment tasks, Perkins Brailler, slate, and styluses were provided to students who were blind, while computers with relevant programs were made available for all SwVI who wished to use them. Despite these provisions, students with low vision expressed dissatisfaction due to the unavailability of devices suited to their needs, such as hand-lenses and other magnifiers. In FGDs, one student with low vision noted:

> *FGDA7: Some devices are made available, especially for our fellows who are blind like Perkins Braillers and cardstock papers, but no assistive devices are provided to students with low vision.*

Despite the availability of computers for SwVI, willingness of students to use them declined due to the lack of knowledge of how to apply them. FGDB2 submitted that, "*Assistive technologies are very essential, though sometimes their essence to us fades away when it comes, we don't know how to use them*…"

Although the Information and Communication Technology (ICT) policy of the university under study stated that the Directorate of ICT should provide staff and end-user training, participants bemoaned the absence of training programs for them. Similar findings are reported by Msoni [6], Ndume [10], and Kisanga [16], where despite the enthusiasm of SwVI to use computers in all their school activities, unavailability of computers with pertinent software and lack of training to SwVI and staff have been a barrier. Scholars like Muzata [2] embed the independence of SwVI in doing assessment tasks with the use of computers. Muzata [23] noted that SwVI at the University of Zambia had limited use of computers due to their limited skills in computer utilization. Using traditional tools like Perkins Braillers and slate and stylus is nowadays challenging since they do not promise required speed and sometimes accuracy. SwVI are concerned about whether their work is transcribed accurately from braille by braille transcribers. The only way to alleviate these concerns is through the adoption of advanced technologies such as computers. To enhance efficiency, training on the use of these advanced technologies should be provided [12]. There is no doubt that the use of computers in assessment can make it easy and fast for students to write and lecturers to mark. There are so many

online applications that allow for an easy assessment. Although technical know-how was a limitation, investing in knowledge and skills in computer usage for various purposes helped achieve inclusive practices. Computers used by learners with visual impairments required Job Access With Speech (JAWS) software, which was often expensive. Institutions of higher learning should therefore make these tools available alongside training programs to ensure that students could confidently participate in their learning and subsequent assessment processes. The use of ICTs in education can increase independence for learners with visual impairment [23].

Transcription process

Findings from the study showed that transcribers were responsible, among other tasks, for converting questions from ordinary print into Braille and vice versa, enabling easy communication between SwVI and lecturers.

> *LR7: Transcription is done in two ways: first these specialists help us to convert our tests and exams into Braille format, and after the SwVI have answered the questions using Braille prints their answer scripts are taken back to transcribers who translate them into normal prints for us to mark.*

These findings resonate with findings by Lynch and McCall [7], and Mosia and Phasha [8]. In educational institutions which embrace inclusion, employing specialist staff in visual impairment is indispensable since they bridge the gap between SwVI and non-specialist educators by helping in the transcription of assessment tasks and answer scripts. Challenges of SwVI in the assessment process are aggravated when there are no specialist staff in special needs education employed. Revelations from the studies by Lyakurwa [5] and Msoni [6] highlighted the challenges faced by SwVI in the assessment process when specialist staff are lacking in an institution. In addition, some participants reported cases of losing SwVI answer scripts due to the absence of official procedures in the transcription process.

> *FGDA5: You know, the issue of transcription looks like it's not recognised by the university management, there is no provision anywhere that describes the responsibilities assumed by lecturers and transcribers in the process.*

Similarly, FGDA2 noted that, "*it is not clearly known who is to take translated answer scripts from transcribers' office to lecturers*". This situation was one of the factors that led to answer scripts going missing, as witnessed by FGDA5, "*my test got lost one day, and the lecturer gave me unrealistic marks for that lost one instead*."

Further, students failed some courses due to the carelessness of certain Braille transcribers in the transcription process, one student exemplified:

> *FGDB1*: *…in my course, I sometimes use Latin words in my works. So, those who transcribe usually mislead the translation in normal prints for they think I have erred writing properly the word in English, while it's not, the word is a Latin one.*

FGDB1's statement is consistent with what Kisanga [16] found. For transcription to be inclusive, Braille transcribers should be considerate and sufficiently competent in the course-related language during transcription. Proofreading should also be conducted for transcribed question papers and answer scripts. Additionally, an official procedure for the transcription process should be established.

Adaptation process

Findings revealed that questions containing diagrams, graphs, and drawings were converted into descriptions to enable SwVI to answer them, while alternative questions were allowed when conversion was not feasible. Nonetheless, some adaptations made to matching and puzzle item questions were reported to be non-inclusive. Similarly, SwVI expressed dissatisfaction with adaptations that significantly altered the content of the questions compared to their peers, as these did not align with the material covered in class. This was expressed by FGDA6, "*I feel bad when there are alternative questions given to us, as a result of adapted questions with diagrams, its content doesn't match with that of our fellows without visual impairment*…" Another student in FGDs narrated:

> *FGDA5: I remember there were questions of puzzles… lecturers tried to find a way out to*

modify them for us. But they put those questions in short answers form with a long dash without signalling to us the number of letters needed for the word required… you may think what is required is a statement because you don't know the number of letters consisting of the correct word, thus ending in failures.

According to the Tanzanian disability Act of 2010 [4], adaptations which are not friendly to SwVI should be recognised as another way of discrimination. This Act further describes that support services for SwVI should be delivered by a qualified teacher. On the contrary, it was noted in this study that in cases where adaptations were not supportive to SwVI, braille transcribers were not consulted during the process. The fundamental purpose of any adaptation is to promote inclusion to SwVI, so when this purpose is not achieved, that adaptation exacerbates exclusion instead.

CONCLUSION

The findings reveal a combination of good and bad practices in the assessment of SwVI in the selected study university in Tanzania. While good practices included various methods such as the use of Braille, large print, oral testing, additional time, allocation of special rooms, and assistive technology, their implementation did not take into account individual differences within visual impairment, making inclusive assessment merely rhetorical. Applying a single form of assessment practice to all learners, despite their differences, overlooked the fact that SwVI have varying degrees of visual impairment. Additionally, students seemed to lack proficiency in braille grade 2 and computer skills, which made it challenging for providers to offer diverse assessment options.

In the light of such findings, it is recommended that the higher education institution where this study was done should. Firstly, intensify the teaching of braille grade 2 to SwVI. Secondly, upscale skills in the use of computers and generally ICTs for learning and assessment purposes among students and lecturers. Thirdly, non-inclusive assessment methods that undermined the confidence and self-esteem of SwVI, such as orally reading questions during examinations and tests, should be eliminated, as this practice pressured students and forced them to produce answers on demand. Fourthly, consider addition of time as a prerequisite to fairness in the administration of assessment. The use of various tools by students took a lot of time, and in some cases, they became exhausted as a result. Adding time based on the individual needs of students worked well in the spirit of flexible, inclusive assessment. Fifthly, train lecturers and other stakeholders in the adaptation of assessments for SwVI in order to realise effective inclusive assessment. Sixthly, encourage the interdisciplinary approach in the assessment process so that lecturers work in collaboration with other experts in special needs education and SwVI themselves to ensure inclusivity of the assessment tasks to all students,

Although the findings may apply to other institutions of higher learning in the country based on the contextual similarity, care should be taken because this study was qualitative and its aim was not to generalise the findings to other contexts. The findings apply to the institution where the study was conducted. There was a need to conduct further studies, preferably quantitative, across all universities to obtain generalizable results. This would help drive policy changes that promote positive inclusive practices for the inclusion of SwVI and other disabilities throughout the country.

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