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# Examining the Impact of the Slate and Stylus as the Lone Response Accommodation on the Academic Achievement of Candidates with Visual Impairment (VI) in the General Certificate of Education (GCE) Ordinary Level Examinations in Cameroon

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**ABSTRACT**

The assessment of learners with disabilities in high-stakes examinations has always been a weak link in all inclusive practices. This is even more a confounding challenge in countries that do not have a long history of inclusive education. One of the areas of this challenge inhibiting the full academic performance of candidates with visual impairment (VI) in the General Certificate of Education (GCE) Examinations in Cameroon, in parity with their sighted peers is the limited number of response accommodations from which they can make appropriate choices depending on the severity of their impairment and their familiarity with the accommodation. Since 2005 when the Cameroon GCE Board started examining candidates with visual impairment in the GCE Examinations, the only response accommodation used (Braille using the slate and stylus) in answering questions has been found to be inadequate for the candidates with VI who often come to the testing arena with different levels of impairment, needs and preferences. The case study design was adopted for this inquiry. Twelve candidates with VI and five computer staff/braille experts were purposively selected for the study. The human rights model of disability provided the theoretical framework for the study. Findings of the study indicate that majority of the candidates 11 (91%) and computer staff/braille experts 5 (100%) confirmed that the only response medium available to the candidates was their preferred writing medium - braille using the slate and stylus. Up to 10 (83.3%) of the candidates reported that their performance in the subjects that calculations were needed was compromised as assistive devices like the talking calculator, cube board and wrist watch were not provided to them during the examinations. The study concludes that there is urgent need for profound reflection on the inclusion of other response accommodations in the GCE examinations for candidates with visual impairment.

***KEYWORDS:*** *Response Accommodation, Academic Achievement, Visual Impairment*

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## Background to the Study

Lowered scores for candidates with disabilities, including those with visual impairment, appear to result when accommodations are poorly matched to student need during testing (McKevitt, 2000; Schulte, Elliott & Kratochwill, 2001). The concept of accommodations for Persons with Disabilities (PWD) in educational institutions is a fairly recent phenomenon. A review of related literature indicates that individuals with disabilities were, for along time, viewed as helpless and hopeless and therefore excluded from classrooms and examination systems.

Providing accommodations to candidates with disabilities (those with visual impairment inclusive) during certificate examinations in Cameroon is plagued with a number of challenges: lack of awareness, lack of finances and equipment, lack of qualified personnel, etc. resulting in a number of attendant consequences on the academic achievement of these candidates.

Ware & Farrell (2009) have indicated that the formal assessment of children through public examinations is a central feature of all education systems but equally regret that standard examination formats and practices may present barriers to visually impaired pupils, thus hindering them from demonstrating their true abilities under such standard examination conditions. There is need for examining bodies to constantly examine the efficacy of the methods and techniques they use in assessing candidates with disabilities on a regular basis in order to eliminate construct irrelevant encumbrances on the academic achievement of this category of candidates.

The medium used by candidates with visual impairment in answering examination questions is very important since any mismatch between the medium and the needs of the candidate can lead to grave consequences on the test. Terre des Hommes Netherlands (2007) reported a harrowing story

of a blind student in Tanzania who used a typewriter in an examination that was not invigilated by a specialized teacher. Sadly enough, it was found only after the examination that the ink ribbon was worn out and nothing had printed on the candidates answer sheets.

**Theoretical framework**

The theoretical framework underpinning the study is the human rights model of disability. Models of disability (Charity, Medical, Social and Human Rights models) represent the varying lenses through which persons with disabilities and their difficulties are seen and appreciated by various sectors of the society. According to a document published by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Christoffel-Blindenmission (CBM), the Convention on the Rights of Persons with Disabilities (CRPD) entered into force in 2008 and has been ratified by 125 countries (October 2012). By its stipulations, the convention fosters a new understanding of disability wherein Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.

The human rights model emphasizes a dramatic shift in perspective which has taken place over the past two decades from an approach motivated by charity towards the disabled to one based on rights. In essence, the human rights perspective on disability means viewing people with disabilities as subjects and not as objects. It entails moving away from viewing people with disabilities as problems towards viewing them as holders of rights. Importantly, it means locating problems outside the disabled person and addressing the manner in which various economic and social processes accommodate the difference of disability.

The disability rights debate is not so much about the enjoyment of specific rights as it is about ensuring the equal effective enjoyment of all human rights, without discrimination, by people with disabilities. Quinn and Degener (2002) have insisted that the non-discrimination principle helps make human rights in general relevant in the specific context of disability, just as it does in the contexts of age, sex and children. Strengthening the advocacy war song for persons with disabilities, they posit that the non-discrimination and the equal effective enjoyment of all human rights by people with disabilities are now the dominant themes of the long-overdue reform in the way disability and the disabled are viewed throughout the world. The human rights model of disability is a marked departure from the charity model which looked upon persons with disabilities with pity.

**Literature Review**

Response accommodations give test takers alternative options for responding to the assessment, and include the use of a scribe or computer to record responses on multiple-choice and essay tests. They offer different ways for students to respond to assessment questions. Response accommodations enable students with visual and hearing impairments, physical and organizational problems to structure, monitor, or directly put words to paper. Examples of these accommodations include:

- Using a computer/typewriter or a scribe/proctor to record answers (directly or through tape recorder)
- Using an augmentative communication device or other assistive technology (AT)
- Using a brailler (Candidate produces his or her work using braille, which can either be manually transcribed into print or, if electronic, internally translated and a print copy generated for a sighted assessor.
- Speech /text device (Candidates verbal responses are transferred to text via a speech/text device like the Dynavox).
- Responding directly in the test booklet rather than on an answer sheet.
- Using organizational devices, including calculation devices, spelling and grammar assistive devices, visual organizers, or graphic organizers.
- Computer or word processor (The candidate uses a computer or word processor after the spell-check and autocorrect options must have been disabled. **(Special Connections, 2005c)**

In a number of cases, students with visual impairments have used the accommodation of oral response, written response (on the test booklet or on paper other than the test answer sheet provided by the test publisher), or taped response. Each of these accommodations requires that a person transcribe the answers onto the answer sheet or booklet that will be scored. Allman (2009) has thus provided the following guidelines to ensure that the transfer of information is performed appropriately without invalidating the validity of the test when any of the above response accommodations are used:

- Confidentiality of the test materials and the student's individual responses is critical. Transcribers must treat the testing materials and the student responses in a secure and confidential manner to ensure test and student identification security.
- Response transcribers must know braille if transcribing Braille responses.
- It is best if the response transcriber is a "neutral" person, not someone with a vested interest in the student's scores.
- Response transcribers must provide the exact answers that the student has written using the same punctuation, spelling, and grammar structure. They cannot guess what the student might have meant if answers are incomplete.
- It is recommended that the response transcriber have a second person proofread the responses to ensure accuracy and fairness to the student. When transcribing graphics that a student has produced, two transcribers should work together in transferring student answers to the answer sheet or booklet.
- For a period of time, student responses must be maintained in a secure file with test name, copyright year, form and level administered so that the student's actual responses can be reviewed if questions arise.

Clapper et al (2005) collected data on response accommodations that change how the student gives answers to test items and the findings indicated that most state policies in America allowed a range of response accommodations without restrictions, including a scribe (n ¼ 32), computer (n ¼ 37), or writing in the test booklet instead of the bubble sheet (n ¼ 35). The study further

indicated that fewer states allowed students to use gestures such as pointing to the correct answer (n ¼ 21) or responding with sign language to an interpreter (n ¼ 20), without restrictions and implications for scoring.

**Alternate Response Modes**

There exist numerous devices/ modes for students with disabilities who are unable to respond in standard ways to instructional tasks or assessments and may need such alternate response modes. Students who have difficulty with expressive communication due to sensory or language impairments, as well as students who are unable to use handwriting due to sight and motor impairments, may need one of the following assistive technology devices:

**Scribes**

Scribes record student responses expressed through speech, sign language, pointing, or using a communication device. The scribe writes down what the student dictates (Thompson et al., 2005). Students with visual impairment and additional disabilities frequently use scribes as a response medium during testing.

**A word processor or computer**

A word processor or computer may be used by students who are unable to effectively use their own handwriting. Assistive technology devices, such as touch screens, trackballs, mouth- or head-sticks, and other pointing devices, as well as alternative keyboards, can be used for typing (Thompson et al., 2005). During testing situations, the spelling and grammar checking feature must be turned off.

**Word prediction software**

This device prompts the writer with word choices based on words previously typed. The predictions are based on spelling, syntax, and frequent/recent use. This allows students to use proper spelling, grammar, and word choices with fewer keystrokes (Alliance for Students with Disabilities in Science, Technology, Engineering and Mathematics, 2009)

**A Brailler**

This is a braille keyboard for typing text that can be printed in standard print or braille. It is similar to a typewriter or computer keyboard. When paired with a screen-reading program, a brailler can also act as a speech synthesizer that reads aloud the text displayed on the screen (Thompson et al., 2005).

**Portable Note-taking Devices**

These are small, lightweight devices equipped with a braille or standard keyboard for input and synthetic voice. Students use electronic note-takers to record notes at school, home, or work. Some devices have additional features, such as a calculator and a calendar, and can be connected to the Internet or personal computer to exchange files or print (Lighthouse International, 2010).

**Voice Recorders**

These recorders are used to record student's class work or test responses electronically rather than writing on paper. Voice recorders are often included in digital or cassette tape recorders, MP3 players, and in software that works on laptop or desktop computers.

**Voice Recognition Software**

Used to converts speech to text, allowing students to use voice as an input device. The student uses speech recognition software to dictate text or give commands to the computer, such as opening applications and saving work.

**Augmentative and Alternative Communication (AAC)**

These includes all forms of communication (except oral speech) used to express thoughts and ideas. This includes facial expressions, gestures, symbols, pictures, and writing. Students with disabilities who have severe speech or language problems rely on AAC to supplement or replace their own speech. Aided communication methods can range from paper and pencil to communication boards. Electronic devices produce voice output and/or written output.

**The Problem**

The only response medium (slate and stylus) available to candidates with visual impairment in the GCE examinations in Cameroon imposes constraints on their academic achievement in parity to their sighted peers, thereby limiting their potential in demonstrating what they know and can do in the GCE examinations. Since candidates with visual impairment come to the testing arena with a wide range of strengths and weaknesses, the lone response medium is inadequate to accommodate their differences. Again, assistive devices such as the talking calculator, abacus, talking clock, necessary in subjects that require calculations are equally lacking. The absence of these devices in such subjects negatively affects their academic performance. Besides, a strong indication from several studies on accommodations suggest that accommodations affect test scores for students with disabilities, lowering scores in some cases, raising scores in most others, hence necessitating that a wide array of accommodation options be placed at the disposal of learners with disabilities to match their different levels of impairments, needs and preferences. The main focus of this study, therefore, was to find out if the lone response accommodation (slate and stylus) used by candidates with visual impairment in the General Certificate of Education (GCE) examinations in Cameroon has an effect on their academic achievement.

**Research Question**

What is the impact of the single response accommodation (slate and stylus) used by candidates with visual impairment on their academic achievement in the General Certificate of Education (GCE) examinations in Cameroon?

**Research Design**

This qualitative study adopted the case study design for the inquiry. Two semi-structured interview schedules and an observation checklist (to guide the observation sessions) were developed for data collection. The two interview guides consisted of open-ended and closed-ended items of almost equal proportion. Both participants and settings of the study were purposively selected. A total of twelve (12) candidates with visual impairment who have written the GCE Ordinary Level examinations and five computer staff /braille experts hired yearly to braille GCE examinations were purposively sampled. The North West and South West Regions were also purposively selected for the study because these are the only two regions in which candidates with visual impairment sit for the GCE examinations. Data were collected through a triangulation of interviews and observation. The data were

qualitatively analyzed with particular attention to delineate the emerging themes. A grounding (n$^s$ & %s) of the responses was also included in the analysis to indicate the strength of each emerging theme.

**Findings**

1. Majority of the candidates 11 (91%) and computer staff/braille experts 5 (100%) confirmed that the response medium available to the candidates was their preferred writing medium - braille using the slate and stylus.
2. Majority of the candidates 10 (83.3%) reported that their performance in the subjects that calculations were needed was compromised as such assistive devices like the taking calculator, cube board and wrist watch were not provided to them
3. One of the 12 candidates indicated that he would have preferred the computer with adapted programmes to respond to the examination questions.
4. Computer staff / braille experts acknowledged that such assistive devices (talking calculator, cube board and wrist watch) are necessary tools to candidates in those subjects that require calculations but regretted that the Board does not provide them to the candidates nor is their provision stipulated by any GCE Board regulations.

**Discussion of Findings**

The GCE Board has made significant strides in accommodating candidates with VI as both candidates 11 (91%) and computer staff/braille experts 5 (100%) confirmed that the response medium available to the candidates was their preferred writing medium - braille using the slate and stylus. The braille accommodation, according to research findings is typically regarded as a change that maintains the validity of the test and so there has been little controversy over its use. Thurlow, House, Boys, Scott, & Ysseldyke (2000) have indicated that the braille accommodation is allowed by 33 of the 48 American states that have statewide assessments.

However, one of the 12 candidates indicated that he would have preferred the computer with adapted programmes to respond to the examination questions. This is an indication that even though technology has been of immense help in assisting people with disability in education or even otherwise in coping up with day to day chores, the GCE Board is yet to seize this opportunity to widen the possibilities of candidates with VI in answering GCE questions. Software packages such as JAWS enable conversion of text into voice. Assistant technologies such as ZoomEx allow conversion of an image file into a text file without the several layers of scanning and conversion. Clapper et al (2005) collected data on response accommodations that change how the student gives answers to test items and the findings indicated that most state policies in America allowed a range of response accommodations without restrictions, including a scribe (n ¼ 32), computer (n ¼ 37), or writing in the test booklet instead of the bubble sheet (n ¼ 35). This single medium of responding to the examination questions was perceived to be problematic to some candidates with VI who due to other disabilities may not be able to conveniently use their hands to Braille.

Majority of the candidates 10 (83.3%) reported that their performance in the subjects that calculations were needed was compromised as such assistive devices like the talking calculator, cube board and wrist watch were not provided to them. Majority of the candidates 10 (83.3%) expressed such frustration:

*The abacus or the talking calculator is a necessity tool for those subjects where calculators are allowed which was never provided to us.; When it comes to calculations, we do them manually meanwhile our sighted mates just punch the calculator.; There are concepts in Economics which require devices such as the calculator which I did not have. I guess this lack led to the 'B' grade I obtained in the Economics instead of the 'A 'grade I hoped for; In Mathematics, I would have needed a talking calculator which I did not have. May be that is why I failed the Mathematics because I actually know it.*

This was equally corroborated by the computer staff / braille experts who acknowledged that such assistive devices are necessary tools to candidates in those subjects that require calculations but regretted that the Board does not provide them to the candidates nor is their provision stipulated by any GCE Board regulations. The absence of these devices for candidates with VI in the GCE examinations is contrary to best practice which mandates that:

*When testing allows the use of non-scientific or scientific calculators, students with visual impairments should be permitted to use an equivalent device that has been adapted for use by the visually impaired user. Before they are used in a testing situation, electronic and battery-operated devices should be inspected to ensure they function properly and that they contain no saved information, which might provide the user an unfair advantage (*Allman, 2005).

Respondents recognized that due to the high cost of some of these devices, it is possible that candidates will obviously need them during examinations but will not be able to provide, the consequence being that they will run away from writing such subjects or will perform poorly in them.

**Recommendations**

1. The GCE Board should embrace the advantages that technology has offered to provide computers with adapted programmes such as JAWS so that candidates with visual impairment, who are familiar and more comfortable with the medium, can use it to answer examination questions.

2. The GCE Board should always ensure that the braille sheets given to candidates with VI are of good quality. They should not be the type that is too hard as piecing them with the stylus is quite fatiguing to the candidates.

3. The GCE Board should make a conscious effort to ensure that assistive devices such as the talking calculator, abacus, talking clock etc. are available at the Centres where candidates with VI will sit for the examinations so that they can also have the opportunity to use them in those subjects that their use is authorised.

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