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Perceptions Towards Ability to Use Assistive Technology Among Learners with Visual Impairments: Michael Diamond's Model Approach

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The desire for integrating technology with learning has grown yet the VI learners develop perceptions on the ability to use Assistive Technology (AT). This article assessed the perceptions of learners with visual impairments inability to use Assistive Technology in learning institutions. The study was guided by Michael Diamond's Model of counselling psychology using a mixed-method convergent parallel research design and carried out in Nairobi metropolitan. With a population of 733 VI learners and 70 staff members from the 13 learning institutions for the VI, a sample of 320 respondents was used. Data collection instruments entailed questionnaires, interviews and focus group discussions. The study found that there are differences in perceptions towards the use of AT devices for the first time among the VI learners. The role of the AT technicians and teachers was to limit the negative attitudes of the VI learners towards AT. The results showed that confidence with AT devices among the VI learners is an attribute of the environment they live. The study concluded that several perception aspects of AT are associated with the ability to use Assistive Technology among VI learners. These include feelings about the ability to use a new AT, the complexity of a new AT and the effectiveness of the teaching approach.

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INTRODUCTION

The efforts and expenditures that focus on education for all can no longer be overemphasized. The international and national efforts and partnerships that seek to address inclusive education for equitable growth have been in the limelight for some time now. The Millennium Development Goals (MDGs) were very instrumental in the fight for literacy for all through campaigns for universal primary education. While this was partially achieved (World Vision, 2015), the focus is still on the debate with Sustainable Development Goals (SDGs) containing a theme on inclusive literacy aims. Technology has proved to facilitate the instructional process effectively across learners of diverse nature (Jackson, 2015). As this desire for integrating technology with learning soars, the VI learners develop perceptions on the ability to use Assistive Technology (AT). This has adverse effects on the use of the AT geared towards access to quality education for this group of learners in learning institutions (Ahmad, 2015).

While there are varied definitions of perceptions, the term can be used to refer to a way in which humans understand and react with a given environmental exposure. This implies that any particular reaction to the AT context (especially the new ones) is interpreted in a certain way. However, when this becomes severe, it creates other human-related problems that affect wellbeing. Moreover, and specifically, such perceptions create academic anxiety which has a significant effect on performance and achievement (Huberty, 2012).

Negative perceptions towards the ability to use AT among learners affects not only the class concentration but also socialization behaviours. The scholar (ibid) associates poor academic achievement with severe anxiety among learners. Additionally, related social anxiety deprives learners of the comfortable to complete academic assignments. Other scholars like Ader and Erktin (2010), have advocated for managing perceptions towards the learning environment as a determinant of academic performance.

On the other hand, social anxiety delineates the learners from concentration in groups including classroom setting. Other scholars including Ader and Erktin (2010), have advocated for investigations on strategies that can limit social anxiety to improve academic performance among learners. Thus, this article aimed at assessing the perceptions of learners with visual impairments inability to use Assistive Technology in learning institutions. In this, the concern was aligned to therapeutic intervention through the application of Michael Diamond's Model of counselling psychology. Drawn from an empirical study carried out within Nairobi metropolitan, the article reports on the perceptions towards the ability to use Assistive Technology among VI learners.

The need for the model is informed by the exclusion context of learners with visual impairment in various educational programmes. Ahmad (2015) observes that the greatest barrier to this is the lack of required support and techniques for ensuring exclusive participation. This is in the backdrop of

the findings that effective technology integration in educational programmes can revitalize the old curriculums to create room for equal opportunities (Davis, Dautenhahn, Powell, & Nehaniv, 2010). This is embedded in the concept of technology as a tool that makes learners accomplish tasks, they would not, hence the solution to “functional barriers” barricaded by perceptions towards its use.

Michael Diamond’s model of counselling psychology is critical for a wide range of psychological concerns including social, emotional, educational, and health-related matters among others. These aspects are important in human life as they determine not only the personal but also interpersonal functioning throughout one’s life. About this, the emotional and social effects of visual impairment affect the learners’ ability to adapt to the growing changes in education. The emergence and explosion of technology in a 21st-century classroom have been imported into these special needs’ instructional contexts as a way to improve learning outcomes.

However, the concern emerges on anxiety and self-esteem that is attributed to the use of Assistive Technologies among visually impaired learners. This creates a gap scenario for psychologists to intervene hence the need to embrace an integrated counselling psychology model through assessment of the learners’ perceptions towards AT use. Michael diamond’s model of counselling psychology has a critical role in understanding the emotional impact among learners especially during

the transitional processes (Thurston et al., 2010). Specifically, among the visually impaired learners, reactions to environmental changes call for emotional support depending on implementation processes (Ueda, 2017). Therefore, the use of Michael Diamond’s model for counselling psychology can assess perceptions towards AT among visually impaired learners.

LITERATURE REVIEW

Literature in this article focused on the concept of Michael Diamond’s model of counselling. The model formed the guide to the study where the AT related psychological dispositions among visually impaired learners is subjected to the model as a therapeutic technique.

Theoretical Framework: Michael Diamond’s Model of Counselling Psychology

Michael Diamond expounded on Clarkson’s (2003), psychotherapy relationships suggested a separate therapeutic space from the real canvas of psychotherapy. Clarkson’s model suggests five stages of the systematic therapeutic process including pre-contemplation, contemplation, preparation, action and maintenance stages. However, this suggestion leaves out the canvas in the therapeutic space which is key according to Michael Diamond. To create an inclusive therapeutic space, Michael modified the model by associating each of the five stages with some model activity as shown in *Table 1*.

Table 1: Michael Diamond’s Model of Counselling Psychology

Clarkson’s Stages	Activity	Michael Diamond’s Model Activity
Pre-contemplation	Thoughts	Reparative
Contemplation	Feelings	Authentic “I” Thou
Preparation	Actions,	Transference and Counter Transference
Action	Interpersonal patterns	Working Alliance
Maintenance	Social systems	Enactment

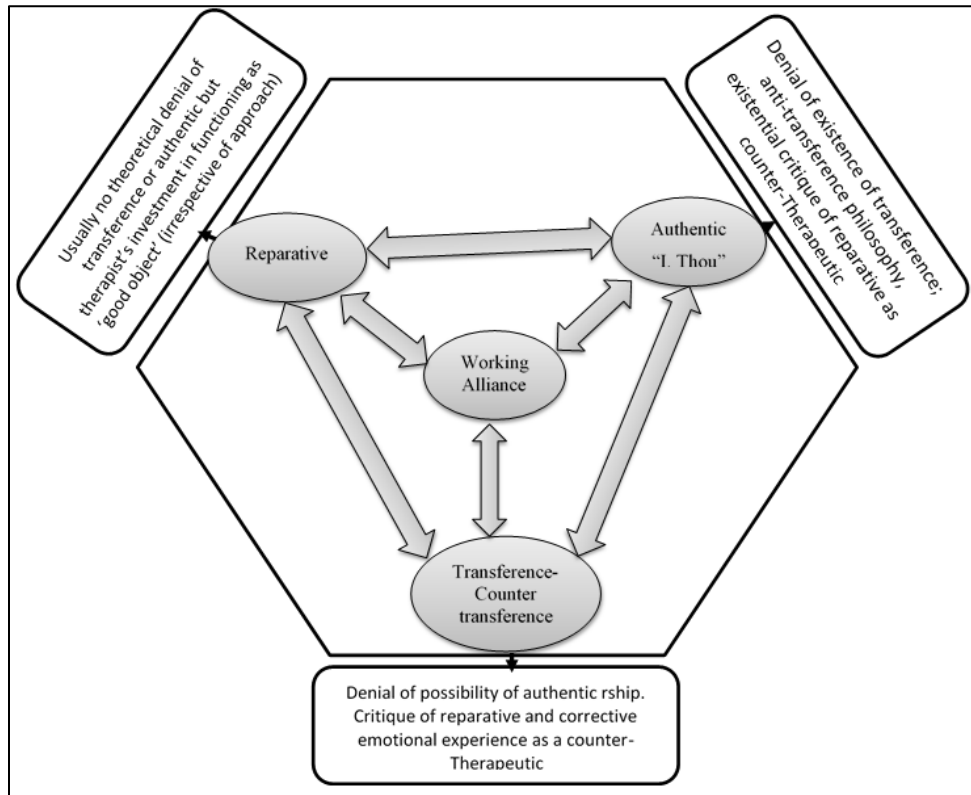
In *Table 1*, Clarkson’s therapeutic stages start with pre-contemplation which entails no intentions to act on foreseen future. Stage 2 which is the contemplation stage shows that people have a desire for change but are limited by existing factors. Stage 3 is the preparation stage which entails intentions to act on the desire once the limits are overcome. In

stage 4, the action involves the decision to take up the phenomenon in which way possible. In stage 5, maintenance entails the adjustments to ensure that efficiencies in the use of the phenomenon are improved to be part of life.

The table also shows the corresponding Michael Diamond’s model activities for each of Clarkson’s

therapeutic stages which can easily be interpreted using a diagram developed in Soth (2008), as shown in *Figure 1*.

Figure 1: The tensions between the four modalities of a therapeutic relationship



Source: Adopted from Soth (2008).

Figure 1 shows that Michael Diamond’s model activities from the therapeutic stages at the *reparative* context is where usually no theoretical denial of transference or authenticity but therapist’s investment in functioning as ‘good object’ (irrespective of approach). At the *Authentic “I tho”* there is the denial of the existence of transference; anti-transference philosophy, existential critique of reparative as counter-Therapeutic. Similarly, before reaching the action (working alliance), the *Transference and countertransference* stage is where one experiences denial of possibility in an authentic relationship. Here, there is also a critique of reparative and thus corrective emotional experience as a counter-therapeutic measure.

Michael Diamond’s model of counselling is a psychoanalytic model that was conceptualized in the study through exploration of the concept of the

human psyche related to perceptions. The external technological environment within which the visually impaired learners live forms the external patterns whereas the existing student body that has developed perceptions towards AT forms the social systems around the new users.

Strengths and Weaknesses of Michael Diamond’s Model

The application of Michael Diamond’s model in counselling has favourable ways of adoption as a therapeutic solution to human behaviour problems. The model relates to the concept of transiting human emotional impact where the emotional instability caused by the new technology can be transited from one person to another. This implies that while the visually impaired learners can adopt the technology in the long run, the effect on lowered self-esteem

and anxiety can be passed from one level of students to another. This also conforms to the concept of peer learning where the learners pass their understanding of a phenomenon to others. Moreover, Michael Diamond's approach to counselling appreciates that there are always some foreseeable actions in a society. This is consistent with the Transtheoretical Model of Prochaska and DiClemente (the 1970s) which is applied in quitting smoking context from smokers' own experiences. The model emphasized that it is easier for a human to execute a given task on their own if they are the sole initiators.

In another dimension, Michael Diamond's Model is applicable as it recognizes the human psyche as an attribute of the existing environment. The existing environment of technology around the visually impaired learners can be controlled by the installation of professional support including counsellors in educational institutions of the visually impaired. This also emanates from the concept of Freud's personality theory (1923) which states that the human psyche is categorized as id, ego or superego depending on the exposed environment.

However, Michael Diamond's Model is associated with several limitations in its application. The stage of propagated "Action" stage may not necessarily exist for individuals who are still undecided at a particular time. For instance, in application to the psychological dispositions among the visually impaired students, the direct interventions may be uncertain as other external determinants could be the basis of decision making on the adoption of the assistive technology. In another dimension, it can be argued that the adoption and embrace or repulsion from technology could be influenced by the immediate environment rather than the professional support whether technical or emotional. Different IT backgrounds of the learners may pose differences in perception and thus different anxiety levels among the same institution learners.

Empirical Literature

Anxiety is distinguished both as a psychological state and a stable personal trait. Having a definite level of anxiety is a natural and necessary peculiarity of an active personality (Ermolaeva, 2015). For example, people's consistent patterns of

behaviour or personality influence how they perceive and evaluate themselves. Kaur (2018) surveyed Visually impaired learners in India using different schools in Haryana and Delhi. The study used a descriptive survey with a sample of 110 visually impaired students to stratify them into special schools and integrated schools. Using purposive sampling, 60 students were selected from special schools while 50 were from integrated schools. The Singh and Bhargav measurement scale (1983) (Emotional Maturity Scale (EMS)) was then employed to measure the participants' emotional development. Data analysis both descriptive statistics including mean and SD and inferential statistics including student t-test. The study revealed that social support enhances self-esteem and psychological well-being and buffers the negative effects of life stress. Conversely, self-esteem may play a critical role in shaping personality processes. Individuals' beliefs about themselves influence how they act in particular situations, the goals they pursue in life, how they feel about life events and partners in a relationship, and how they cope with and adapt to new environments (Maor *et al.*, 2011).

Leung *et al.* (2010) examined the relationship between academic stress, children's anxiety and academic attainment among visually impaired primary school children in Hong Kong. Using a cross-sectional survey design, the study entailed a sample size of 1,171 drawn from grades five and six. Findings of the study revealed that the VI girls were more disturbed by "academic inefficacy and fear of failure" and the VI boys were more affected by "expectation and demands" from others and academic demands and overload. Moreover, time spent by parents communicating with their VI children, parental emotional, informational and instrumental supports and children's resourcefulness was beneficial to VI children's emotional and academic adjustment. Emotional support lowered children's anxiety while protectiveness brought about the opposite outcome (Loftin, 2016).

Assistive technology can improve teaching and learning in inclusive classrooms in various ways (Kleiman, 2010). Research demonstrated, however, that individuals with disabilities are not often allowed to try out assistive technology devices before purchasing them. Perception showed that

individuals denied the opportunity to try out the technology before purchasing it must rely on the judgment of the professional who selects the device for them (Fuller & Applewhite, 2011).

METHODS

The study employed a mixed-method convergent parallel research design. The study was carried out in Nairobi metropolitan. The target population was 733 visually impaired learners and 70 staff members from the 13 Visually Impaired learning institutions in the metropolitan. The sample size was determined by Slovin’s formula (1960) to give 320 respondents who were selected using stratified random sampling to give 5 principals, 23 teachers and 292 learners. Data collection entailed questionnaires, interviews and focus group discussions which were piloted at St Lucy’s School

for The Blind in Meru County. Validity was determined using expert judgment while reliability was examined using split-half and analysed with Spearman rank correlation. Data obtained was analysed quantitatively with descriptive statistics including means, frequencies and percentages and inferential including correlation analysis with help of SPSS version 24.0. Qualitative data was analysed using thematic content analysis.

FINDINGS

The collected data was measured on items including the perceived ease of use of AT, exposure, and teacher approach in their use. The measurement of the items was on a Likert scale of 1- 5 with 1 – Strongly disagree, 2 – Disagree, 3 - Neutral, 4 – Agree and 5 – Strongly agree. The descriptive statistics on the theme is as presented in *Table 2*.

Table 2: Descriptive Statistics on perceptions of learners with VI in the ability to use AT

	N	Min.	Max.	Mean	Std. Dev.
I easily used text-to-speech devices the first time	257	1	5	3.21	1.605
I feel that after use of screen reading software, I can easily use any other related AT device	256	1	5	3.71	1.094
I think learning the use of braille machines earlier would make easier use of other AT devices	258	1	5	3.49	1.412
I feel that it is the exposure to AT devices that has made me able to use them	259	1	5	3.36	1.616
I think I can easily use any AT device in my class	248	1	5	3.33	1.588
The teacher approach makes me competent in the use of AT devices he/she is introducing	230	1	5	3.69	1.465

Table 2 shows a valid N (listwise) of 223 respondents. The varied responses for each item ranged between the lowest (1- strongly disagree) and the highest (5-strongly agree). The Table also indicates that the item with the highest mean, 3.71 is “I feel that after use of screen reading software, I can easily use any other related AT device.” This depicts the need of the new AT users to learn screen reading software. This is followed by the “The teacher approach makes me competent in the use of AT devices he/she is introducing” item at a mean of 3.69 with a standard deviation of 1.465. This illustrates the necessity of teacher guidance in the use of AT among learners with VI. Each of the items

was analysed using frequencies in SPSS and the results are presented in the following sub-sections.

Use of Text-to-Speech Devices the first-time

The VI learners, through the administered questionnaire, were required to score the level of agreement with a statement on the use of text-to-speech devices the first time. The item was structured in the form of a statement as “*I easily used text-to-speech devices the first time.*” The item was collected data was analysed and presented using Table 3.

Table 3: Use of Text-to-Speech Devices the first-time

Response	F	%	Cumulative Percent
Strongly Disagree	65	25.1	25.3
Disagree	30	11.6	37.0
Neutral	30	11.6	48.6
Agree	49	18.9	67.7
Strongly Agree	83	32.0	100.0
Total	257	99.2	

Table 3 shows a valid response of 257 from the 259 of the questionnaires returned. The table shows that the majority of the respondents 83(32.3% valid) strongly agreed with the statement that they easily used text-to-speech devices the first time. However, this is almost contrary to a small margin portion of the respondents 65 (25.3% valid) who strongly disagreed with the statement. The fewest of the respondents at 30 (11.7% valid) disagreed and remained neutral with the statement in equal proportions.

Use of Screen reading Software and Subsequent Use of any other Related AT Device

The respondents were also asked to rank their views on the use of screen-reading software and subsequent use of any other related AT device. Through the statement “*I feel that after use of screen reading software, I can easily use any other related AT device*”, they collect data was analysed and presented using *Table 4*.

Table 4: Use of Screen reading Software and Subsequent Use of any other Related AT Device

Response	Frequency	Per cent	Cumulative Percent
Strongly Disagree	14	5.4	5.5
Disagree	27	10.4	16.0
Neutral	36	13.9	30.1
Agree	122	47.1	77.7
Strongly Agree	57	22.0	100.0
Total	256	98.8	

Table 4 shows a valid percentage of 98.8 from the collected questionnaires. The majority of the respondents 122(47.7% valid) indicated that they agreed with the statement “*I feel that after use of screen reading software, I can easily use any other related AT device*”. Close to a half to this 57(22.3%) indicated strongly agree while the fewest 14(5.5%) indicated strongly disagree.

Use of Braille Machines and subsequent Use of other AT Devices

Through a questionnaire item under the theme of perceptions on AT among the VI and level of psychological dispositions, the respondents were required to indicate their rating on the use of the Braille machine and other devices. The specific item was “*I think learning the use of braille machines earlier would make easier use of other AT devices*”.

Table 5: Use of Braille Machines and subsequent Use of other AT Devices

Response	Frequency	Per cent	Cumulative Percent
Strongly Disagree	38	14.7	14.7
Disagree	33	12.7	27.5
Neutral	29	11.2	38.8
Agree	81	31.3	70.2
Strongly Agree	77	29.7	100.0
Total	258	99.6	

Table 5 shows that the majority of the respondents 81(31.4%) of the valid percentage agreed with the statement that the use of brailled machines helps in the subsequent use of other AT devices. In close range, the strongly agree at 77(29.1%) followed which cements the importance of the exposure to basic AT devices before the introduction of other related ones.

In a related interview section with the staff and administrator within the sampled VI institutions of learning, the study shows that the concern for the administrators focuses on the slower but steady introduction of the AT to learners. In one instance, the school administrator stated:

We are so keen on ensuring that our students get to learn and even utilize these devices in stages.

For instance, we do not encourage the newcomers to use AT devices that are at the complex level that is used by the older students. However, sometimes it becomes a challenge for the staff to control this which leaves the devices at the learners' discretion.

Related to the item of use of braille machines and ease of use of subsequent AT devices, the learners were asked to rate their feelings on exposure to AT devices and their ability to use them. Through an item “I feel that it is the exposure to AT devices that have made me able to use them”, the learners rated their feelings on a Likert scale 1 – strongly disagree, 2 – disagree, 3- neutral, 4- agree and 5 strongly agree. The collected data was analysed and presented using Figure 2.

Figure 2: Exposure to AT Devices make me able to use them

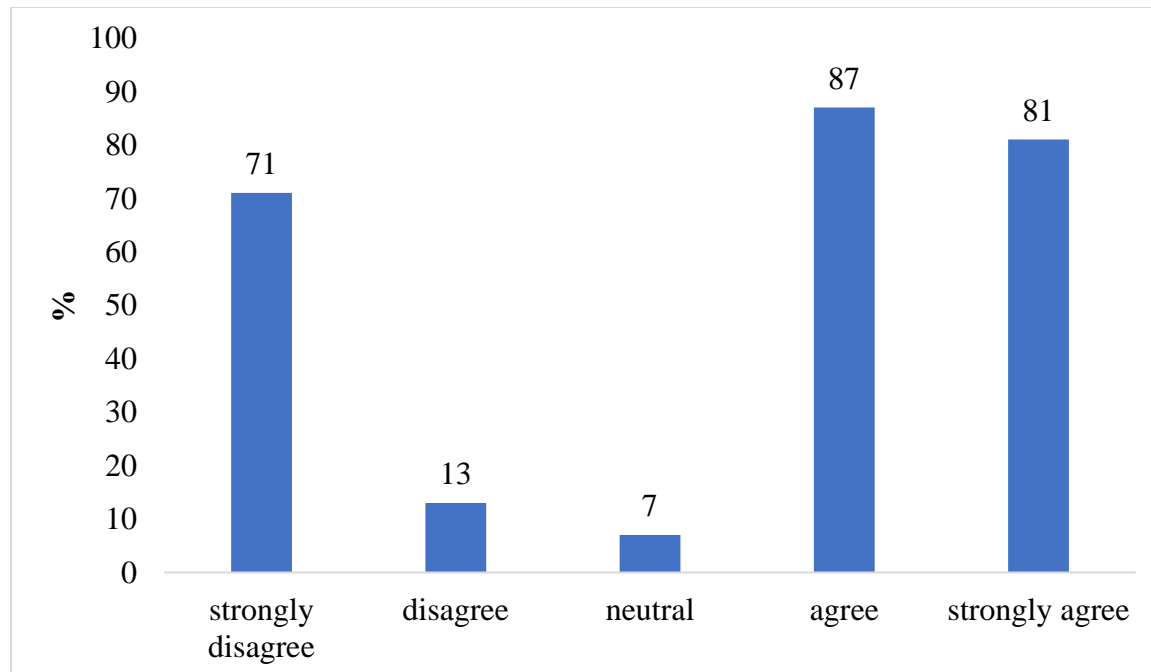


Figure 2 shows that the majority (87) from the 259 responses agreed that exposure to AT devices enabled them to easily use them. A close proportion of the respondents (81) indicated that they strongly agreed that exposure enabled them to use AT devices. Conversely, 71 indicated that they strongly disagreed that exposure enabled their use of AT devices.

Use of AT in Classroom Context

The study entailed a questionnaire item on the ease of use of AT devices in a classroom context. The item was structured as “I think I can easily use any AT device in my class”. The responses were measured on a Likert scale of 1 – strongly disagree, 2 – disagree, 3- neutral, 4- agree and 5 strongly agree. The collected data was analysed and presented using Table 6.

Table 6: Ease of Use of any AT Device in the Classroom Context

Response	Frequency	Cumulative Percent	
Strongly Disagree	63	24.3	25.4
Disagree	15	5.8	31.5
Neutral	27	10.4	42.3
Agree	63	24.3	67.7
Strongly Agree	80	30.9	100.0
Total	248	95.8	

Table 6 shows that the majority of the responded VI learners 80(32.3%) strongly agreed that they would easily use any AT devices in a classroom context. This was followed by 63(25.4%) at agree which tallied with strongly disagree. Despite the higher proportions for the agree compared to the disagree, the results mean that there is a variance in the use of any devices among the VI learners.

The investigation on the use of AT devices in a classroom context was complemented by the item on whether the teacher approach makes the VI learners feel competent in the use of the devices. Through a Likert scale measure, the responses were scaled between 1 and 5 with 1-strongly disagree and 5-strongly agree. The collected data was analysed and presented using Figure 3.

Figure 3: The Teacher Approach and Competence in Use of AT Devices

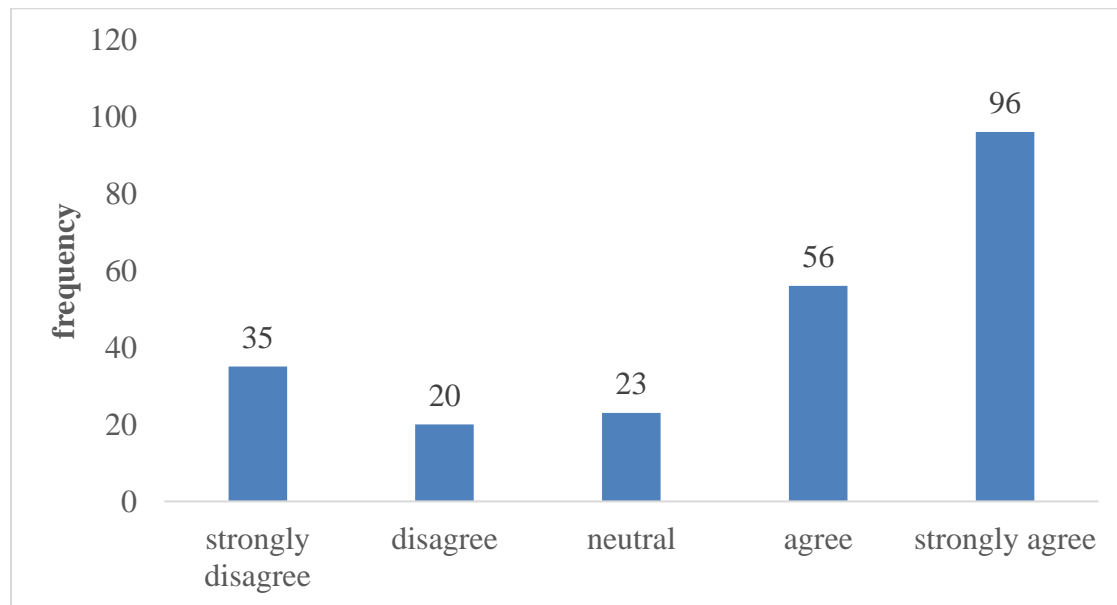


Figure 3 shows that the majority of the respondents (42%) strongly agreed that the teaching approach in introducing the AT device in classroom context was important in their competence in utilization of the particular device. This was followed by agreeing at 24% which implies a higher proportion of the learners agreeing that the teacher approach influences their competence in using AT devices. This also depicts an association that exists between teacher support and the utilization of AT devices. Utilization also influences the adoption.

The interview results with the AT technicians in one of the institutions echoed this need for teachers. The interviewee stated:

Sometimes, the determinants of utilization and adoption of the new AT devices depends on the

teacher who introduces them to them. Many times, we have received reports of some VI learners complaining that they would not use a particular AT device because of the way it was introduced to time by the teacher. This is a pure reflection on the importance of the teacher role in introducing the AT to the learners.

Believe in Use of any introduced Assistive Technology

The study investigated the perceptions towards AT among the VI learners using the belief among the VI learners that they can use any AT devices introduced to them. The questionnaire item was measured on a dichotomy with responses between Yes or No. The collected data was analysed and presented using Figure 4.

Figure 4: Belief in Use of any introduced Assistive Technology

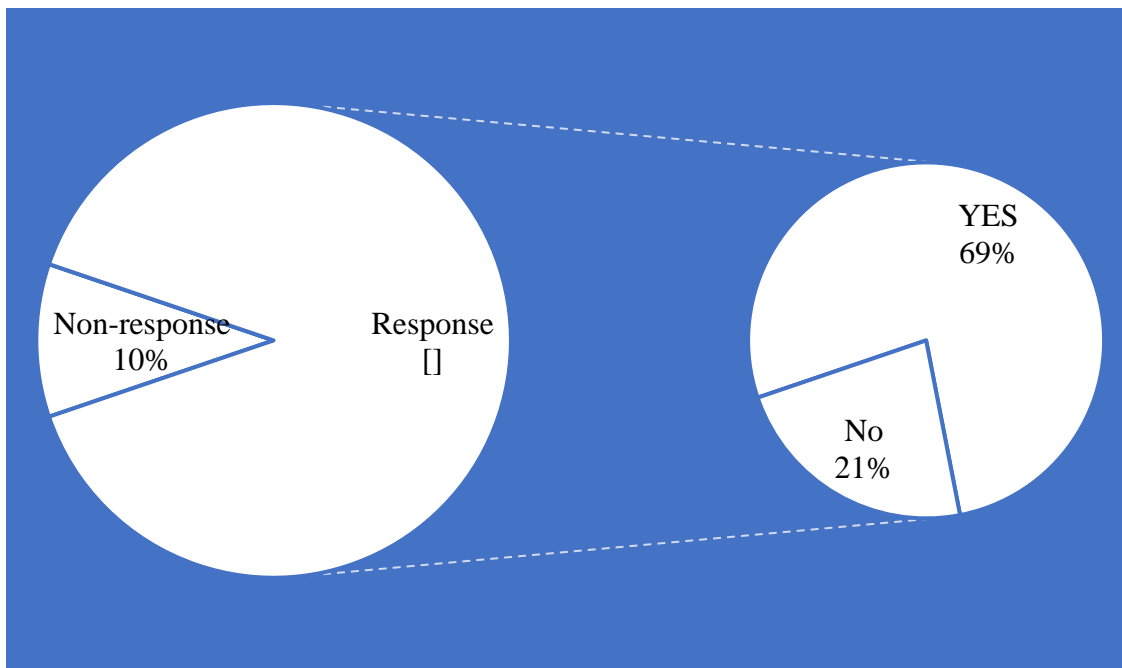


Figure 4 shows a non-response at 10% with those who responded to the item being 90%. The majority of the respondents (69%) indicated that YES, they believed that they would use any assistive technology introduced to them. On the other hand, 21% of them indicated that they did not believe that they would use any AT introduced to them. They believe in the use of any AT introduced to the learners implies that they thrive in self-confidence.

Through interviews, one of the institutions' staff noted;

The confidence with AT devices among the VI learners is an attribute of the environment they live. No one should blame the VI learners with low self-confidence in the use of AT devices. Perceptions towards the use of AT among the VI learners are created through socialization with the environment. Specifically, self-esteem is

attributed to the focus on positive self-talk and visualization.

DISCUSSIONS

The study shows that the majority of the respondents strongly agreed with the statement that they easily used text-to-speech devices the first time. The findings imply that the differences between the views on perception about the use of AT devices for the first time among the VI learners are significant. The findings depict the posting Maor *et al.*, (2011), that the learners' individual beliefs about themselves influence how they adapt to new environments. The differences would consequently create differences in the development of anxiety towards the AT devices.

The majority of the respondents agreed with the statement "*I feel that after use of screen reading software, I can easily use any other related AT device*". This implies that the introduction to screen reading software could be a critical role-player in teaching the VI on the use of AT. This points to the role of the AT technicians and teachers whose mandate is to ensure that the VI learners have sequential learning of the AT such that they can adapt. Moreover, the introduction to such AT devices can be of significance in addressing anxiety issues related to AT use. As a perception among the VI learners in the use of screen reading software and subsequent use of any other related device, Ermolaeva (2015) acknowledges that having a definite level of anxiety is a natural and necessary peculiarity of an active personality. The VI school managers, caregivers and technicians can employ this tool in moderating psychological dispositions among the VI learners.

The majority of the respondents agreed with the statement that the use of brailled machines helps in the subsequent use of other AT devices. These findings reveal that the more the VI learners are exposed to less complicated AT devices, the more they get the confidence to handle and utilize the related ones. The findings conform to Lin *et al.*, (2019), who posit that social anxiety disorder can be mitigated through administration for exposure therapy. In their study among the analogue adults in Singapore, the researchers revealed that despite the lack of a therapeutic mechanism of treating social

anxiety, exposure significantly reduced it among the young analogue adults.

Through the interview sessions with the staff, the study found that the concern for the administrators focuses on the slower but steady introduction of the AT to learners. This implies that the existence of psychological dispositions depicted through anxiety in the utilization and adoption of new AT devices among the VI learners could be attributed to lack of exposure. The VI learners, through focus group discussions (FGDs), were noted to be keen and cautious while using various AT devices. The use of the braille machine was found to be the easiest and most frequently used among the entire VI learners in the sampled institutions. This is associated with its simplicity and is essential for use in basic literacy and numeracy skills among VI learners (Martiniello, Wittich & Jarry, 2018).

The majority of the VI learners agreed that exposure to AT devices enabled them to easily use them. This implies the higher support of exposure in AT for utilization despite variations in opinions. This indicates a variance in the opinions on whether AT exposure works for every VI learner in the use of AT, or it is selective. The differences are explained in the positing of Lin *et al.*, (2019) who opines that exposure has some significance but has its weaknesses.

The study also shows that the majority of the responded VI learners 80(32.3%) strongly agreed that they would easily use any AT devices in a classroom context. The study findings corroborate Ahmed's (2018), posit that there are a variety of AT devices that may call for a great effort to utilize. The author posits that some assistive technology services and devices may require a great deal of effort. The author states that the challenges in use especially in the classroom context may be pegged on various factors including insufficient assessment and lack of training.

The study points out that the majority of the VI learners (42%) strongly agreed that the teaching approach in introducing the AT device in classroom context was important in their competence in utilization of the particular device. The findings reveal the attributes of mitigating psychological dispositions towards AT among the VI learners. The teacher approach can be a tool in controlling anxiety

and boosting self-esteem related to AT device use among the VI learners. The study findings corroborate the views of Dintoe (2019), through his revelation that professional support is also a factor related to the ongoing use of technology in the diffusion of innovations theory. The role of diffusion theory relates to the teacher required support for the VI learners to utilize the AT devices. The teacher approach makes the learners easily understand especially through a diffusion mechanism where they would learn what s/he is teaching them. For instance, Rebeca, Helen and Andrew (2019), opine that the teaching approach was key in determining the psychological need frustration of the learners. The need for mitigating the psychological dispositions among the VI learners would thus call for a recommended teacher approach to the introduction of the AT devices.

Through interviews, the study showed that the determinants of utilization and adoption of the new AT devices depends on the teacher. The results imply that some of the psychological challenges towards AT devices among the VI learners in learning institutions can be addressed through instituting a clear or most desired teacher approach. This also relates to the literature that connotes the overall teacher approach in students' learning outcomes (Meghan et al., 2014).

The majority of the respondents (69%) indicated that YES, they believed that they would use any assistive technology introduced to them. This shows that the development of self-confidence creates a sense of defeating anxiety among learners (Meek et al., 2019). The learners who felt that they can use any AT introduced to them have lower chances of suffering from any anxiety which is also a factor of self-esteem (Murray, 2018). This informs the researcher that the creation of self-confidence in the use of AT is a factor that can be used to mitigate psychological dispositions among the VI learners.

The study findings are in tandem with other empirical studies which associate students' attitudes, believing in self and anxiety. Murray (2018), states that believing in self is an attitude that develops over time. choice. The researcher points to the caregivers like parents who determine the attitude. He argues that the attitude is mostly passed on from parents to children through the

development of self-limiting beliefs. About the carried out FGDs, the VI learners stated that the confidence in the use of the AT devices was adopted from some caregivers, some from parents and others from their teachers.

The interview results showed that confidence with AT devices among the VI learners is an attribute of the environment they live in. The findings imply that the self-belief in the use of AT among the VI learners is an attribute of socialization that is formed by guidance. The anxiety among the learners can be moderated through mentorship. The positive talks about the use of AT among the learners can significantly improve their self-confidence hence lowering anxiety while improving self-esteem.

CONCLUSION

The study concludes that several perception aspects of AT are associated with the ability to use Assistive Technology among learners with visual impairments. These include feelings about the ability to use a new AT, the complexity of a new AT and the effectiveness of the teaching approach. The perceptions thrive on factors including exposure, social support and self-belief. However, the perceptions vary across various AT devices and individual VI learners. The study conclusion includes different levels of awareness of the application of Assistive Technology in educational instruction among learners with visual impairments. The differences in awareness levels are attributed to the level of exposure, institutional factors, among others.

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