Effectiveness of Inclusivity in Technical Education: A Case of Visually Impaired Learners in Mashonaland East Province of Zimbabwe

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Abstract: The study investigated on effectiveness of inclusivity in the teaching and learning of technical subjects in high schools of Mashonaland East Province in Zimbabwe. A descriptive survey research design was adopted while the questionnaire and the interview guide were used to receive data for the study. Analysis was done using descriptive statistics in terms of mean scores. Based on the findings, the study concluded that the inclusion of learners with low vision in the teaching of technical subjects in the main stream was not effectively conducted as most teachers were not trained to handle learners with special educational needs such as the visually impaired at colleges or universities. Specialist teachers did not get time to professionally develop their colleagues and hence subject teachers remained ineffective and incompetent. It is therefore recommended that school authorities should periodically initiate staff development programs for subject teachers on how to effectively help learners with low vision in the respective schools. Technical teachers’ colleges in the country should include Special Needs Education (SNE) courses for student teachers to effectively discharge their duties in the classroom. High schools managers in the province should ensure that learners with low vision get adequate time per week for assistance and remediation.

Keywords: Visual impairment; technical subjects; special needs education; teacher attitude; inclusivity.


Introduction
The United Nations (UN) adopted and enacted laws that protect people living with disabilities through the process of inclusivity in education (Dziva, Shoko & Zvobgo, 2018). As a result, conventions and conferences have been made to encourage member
states to embrace inclusivity in schools (UNESCO, 1994) so that all learners are given an equal opportunity to attend school in their locality regardless of the different circumstances they find themselves in. Many countries have embraced the implementation of inclusive education and inclusive set ups where learners with disabilities are attending school together with normal students have increased in the recent past (Singal, 2019). It is generally agreed that inclusive education is one of the rights of people living with disabilities and these rights need to be protected through allowing learners to take part in the education process which is free of exclusion (UNICEF, 2017). It thus implies that if the world is to protect the rights of learners with disabilities, then factors that inhibit the effectiveness of inclusivity should be explored and consequently exposed with a view to improving practice in the education sector.

Countries in the African continent have also adopted the idea of inclusive education as espoused in the World Conferences such the Jomtein of 1990 and the Salamanca World Conference of on Special Needs Education of 1994 (UNESCO, 1994), notwithstanding the number of challenges faced by inclusive education (Manandu, 2011).

The adoption of inclusive education in developing countries is facing a plethora of challenges that include but not limited to lack of resources (Mokaleng & Möwes, 2020), shortage of untrained teachers to man special needs classes (Mwangi & Orodho, 2014) and/or teacher attitude. In Kenya, for example, the government had projected to provide one special needs education unit in every institution of learning by the year 2015 (Ministry of Education, 2005 in Wangari, 2015). However several challenges hinder the smooth and effective implementation of inclusive education in schools in the continent. Sarton and Smith (2017) argued that the UNESCO disability occurrence rate in populations is around 10 to 16 per cent but in some African countries, the reported enrolment of disabled children in schools are very low, for example 0.7 per cent of all school enrolment was in Ethiopia, 1.1 per cent in Rwanda and 1.79 per cent in Uganda. These numbers indicate that there is a big number of disabled learners who are not in school or are not accounted for in the school enrolment in the in the continent. The unaccounted for learners in the normal school system could be a result of some shortcomings of the effectiveness of inclusivity in the education system in the continent.

The views of the Salamanca statement were also adopted by the Ministry of Primary and Secondary Education (MoPSE) in Zimbabwe (Majoko, 2019). As a result, both primary and secondary school learners with disabilities like the visually impaired, intellectual and physical impairments were incorporated into mainstream classes (DFID, 2009). This was done to ensure that all learners including those with special needs are given equal opportunities to learn in the community in which they live during and after their school life.

Technical subjects are an integral part of every learner’s overall development (Hayes & Bulat, 2017); hence schools in Zimbabwe should also consider learners with disabilities for these learning areas. In the recent past learners with low vision were taking the subjects just to while up time (Morelle, 2016) and would not sit for the terminal examinations in these subjects. The fact these disabled learners were not considered for national examinations in technical subjects implied that these learners were excluded and the effectiveness of the inclusive education in technical subjects was not guaranteed. It thus implies that the concept of the effectiveness of inclusive education in technical subjects need to be interrogated with a view to creating a national dialogue that exposes gaps that are to be filled in this area. It is against this background that this study sought to explore the effectiveness of inclusive education in Zimbabwe’s technical education. The study was guided by the following research questions:

1. How effective is the teaching of technical subjects to learners including those with low vision?
2. How adequate is the support given to visually impaired learners in technical education?

Theoretical Framework

The study resonates with the work of Peter Rodney’s (2003) social inclusion theory in Wadegaonker et al (2015) which explains that the psychological credence underlying inclusion in education is that the educational needs of the disabled child is similar to any other child’s. This study is girded in the social inclusion theory as it is premised on giving equal learning opportunities for the visually impaired learners. The social inclusion theory helps to explain the phenomenon behind this study, hence its choice. The theory further shows that learners with disability and those without have
common societal needs which should be solved inclusively. If the needs of learners are similar, then there is no need for exclusion of some learners simply because of their disability, language, ethnic grouping or race. The theory says that social inclusion promotes better life outcomes as a result of adequate social engagement of different learners that benefits them irrespective of their incapacity. This theory is important in guiding this study because it is bound on inclusive education whose thrust is to cater for the need of every learner regardless of their differences in cultural, physical, academic and social persuasion.

The theory brings to the fore the fact that it is important for educators to realise that for them to integrate all groups of people in the mainstream school system. Then social inclusion theory is necessary and social exclusion should be avoided for the idea of inclusivity to be achieved in secondary schools. Therefore, inclusivity is necessary for teaching and learning of learners with and without disabilities in technical education because it takes the needs of all learners seriously and no learner is left behind due to his/her social, physical, ethnic, race or cultural predicament. A conducive learning environment is created so that a learner is taught with his peers of his/her age, same neighbourhood, equal opportunities as well as being respected for their physical condition.

**Literature Review**

**Effectiveness of Inclusive Education in Technical Subjects**

The study explored the effectiveness of inclusive education in the teaching of technical subjects. Inclusive education is premised on respecting the fundamental right of the learner, valuing his/her wellbeing, dignity and the elimination of all barriers to education. All learners should be respected and learn together at the same school in the same environment and no learner should be excluded based on their physical condition, spoken language, ethnic grouping and/or academic performance. To that end, the underlying factor for the effectiveness of inclusive education is through the use of quantitative tools in measuring the degree of access to education of the different learners (Schuelka, 2018).

Access to education means that barriers to inclusive education should be known and completely eradicated. Ainscow and Haile-Giorgis, (1998) argue that there are barriers to progress and attitude towards certain sections of children in the community that inhibits the effectiveness of inclusive education. Effectiveness of inclusive education means that children in the technical subject are taught together in mainstream teaching spaces for the better part of their day regardless of their physical condition or academic performance.

Studies have shown that this kind of set up has had some positive results. A study on impact of inclusive education in Kenya showed that inclusive education had a positive impact due to the increased access to education by primary school learners (Kurumei, n.d). The study further showed that in the past learners with disability were hidden by their guardians/parents for them not to go to school thereby depriving them of their right to go to school.

A study by Ladbrook (2009) on challenges experienced by educators in the implementation of inclusive education in primary schools in independent South Africa revealed that problems such as shortage of infrastructure and lack of knowledge by teachers were faced. The study recommended that problems faced by teachers could be addressed by giving them support to successfully implement the inclusive education in South Africa. It thus implies that inclusive education in South Africa had teething challenges in implementing it in primary schools at the time that required support from government and other stakeholders.

**Challenges Facing Inclusive Education**

Many countries the world over, have a thrust towards inclusive education in schools, but a number of challenges hinder its implementation due to different peculiarities these countries find themselves in, some countries are rich while others are poor, some are big while others are small.

Most African countries are poor and hence have problems in acquiring resources. In Nigeria the visually impaired learners were faced with a number of challenges such as unfriendly environment, inadequate facilities as well as lack of trained personnel (Okoye & Adirika, 2019). Challenges inhibiting the smooth implementation of inclusive education in these countries are to do with budgets. However other studies contend that implementation of inclusive education is not about budget but it should be a continuous process which should not be resource-intensive but design focused. What this implies is that while resources...
are expensive for the effective implementation of inclusive education in schools, they can be acquired slowly starting with locally available ones which could be cheap, then gradually expanding to acquire the more sophisticated others.

The visually impaired learners use braille and their typing devices make a lot of noise for other learners and this can be a challenge especially when taking examinations in the same room. Another problem faced by learners with disabilities could be the failure by these learners to adjust and live with other students at school or college and be integrated with other learners who are not disabled (Wang 2009). A study by Morelle and Tabane (2019) in South Africa on challenges experienced by learners with visual impairment in South African township mainstream primary schools found that learners with visual impairment were physically integrated but not actually included in the mainstream schools. It was further noted that teacher training and support was supposed to be enhanced so as to adequately assist these learners. The fact that teachers were not trained to assist learners with visual impairment at Teachers’ Colleges meant that their conduct towards learners with low vision in these schools was not as effective as per their call of duty. If teachers are not effective in discharging their duties, then parents and learners will not be interested in the school system thereby reducing learner access to education. It is prudent to conduct studies exploring the effectiveness of inclusivity in technical education with a view to proffer solutions to some of the challenges bedeviling this worthwhile program.

Support Given to Visually Impaired Learners

The proper implementation of inclusive education in different parts of the globe is so much hinged on the capacities of the different countries to provide the much needed resources to teachers and learners in schools. According to Hayes and Bulat (2017), meeting the needs of students with disabilities is a big challenge especially in developing countries where resources are scarce. Shortage of resources in education is tantamount to lack of support and in many countries it is not taken in good light by students and teachers alike. Thus lack of resource provision by schools to learners with visual impairment can be perceived to be a way of exclusion to these students. Asamoah, Ofori-Dua, Cudjoe, Abdullah and Nyarko (2018) conducted a study in Ghana on the perception of visually impaired learners to other students without disability. The study revealed that for teachers to effectively teach students with low vision, adequate resources should be provided so as to develop their capacities to keep pace with their academic work. Chikukwa, Chabaya, Mupa and Dumbu (2012) conducted a study on the challenges faced by visually impaired students at institutions of higher learning and among other findings, the study revealed the lack of equipment and other services to adequately serve them was a big problem. A study by Ralejoe (2021) on inclusion of learners with or without visual impairment in secondary schools in Lesotho revealed that lack of support due to inadequate resources and unwelcoming infrastructure hampered the inclusion. It thus implies that if resources are a factor affecting the effectiveness of implementing inclusion in schools in other countries, such studies can also be conducted in Zimbabwe and elsewhere so as to corroborate findings with those previous findings.

Methodology

A descriptive research design was adopted in this study. The thrust of descriptive research designs is describing the characteristics of certain phenomena as well as data collection without manipulation of variables.

Population and Sampling

The target population in this study was thirty-one (31,) consisting of nine (9) learners with visual impairment, nineteen (19) technical subject teachers and three (3) Special Needs teachers at the three high schools with Resource Units in Mashonaland East Province of Zimbabwe.

The three high schools which took part in the study were purposively selected since these were the only schools with Resource Units (RU) as well as having learners with visual impairment in the province. Researchers purposively selected a sample of twenty-four (24) respondents consisting of nine (9) visually impaired students, 3 special needs specialists and (12) technical subject teachers from the three sampled high schools. All the 9 visually impaired learners were selected to participate in the study and 15 teachers (all 3 special needs specialist and 12 teachers taking technical subjects at the three high schools) made up part of the sample. Overall all form 1 to 6 learners (9) with low vision (LWLV) in the three high schools responded to interview guide questions. Teachers who teach technical subjects, as well as specialist teachers at these schools were considered knowledgeable.
about the predicaments of learners taking technical subjects and hence formed part of the research participants.

**Instrumentation**
The instruments used consisted of a self-constructed structured questionnaire for teachers and an interview guide for the low vision learners. An interview guide was used to generate data from 9 virtually impaired participants. The interview was found appropriate to use with visually impaired learners who could have had difficulties in reading if the questionnaire was used. The interview also gave the researchers some space to make probing questions based on facial expressions. Questions on the interview guide and the questionnaire item solicited similar information on how learners and teachers viewed the provision of technical education to visually impaired learners, the availability of resources and challenges learners faced in the area of inclusive education.

**Pilot Testing of Instruments**
The two instruments used to generate data in the study were pilot tested to check for their validity and accuracy before they could be administered. The teacher’s interview was tested with teachers at a school in Marondera District in the same province while the interview guide for learners was tested at a school with visually impaired learners in Masvingo Province. The instruments were subjected to a specialist for their ability to measure what they purport to measure and they were adjusted accordingly after the test.

**Procedure**
The questionnaires were distributed to the three high schools with resource units for teachers taking learners with visual impairment in the province. A 15 question Likert-scale with the categories: strongly agree, agree, not sure, disagree and strongly disagree were used to generate data. The interview guide for visually impaired learners solicited for the same information from that of the questionnaire, hence yielded data triangulation which is achieved by generating same data from different sources.

**Ethical Considerations**
To ensure confidentiality and anonymity of respondents during and after the research process, pseudonyms names were used in the study. It was also made clear that participation in the study was voluntary and respondents were free to discontinue the process any time they wanted to do so. Since some of the respondents were minors less than the legal age of majority, parental consent was sought before the commencement of the research process and the agreement was done verbally.

**Findings and Discussion**
The study explored the effectiveness of inclusive education in technical education in Mashonaland East province of Zimbabwe. The results section was guided by two research questions.

**Research Question 1:** How effective is inclusivity in the teaching of technical subjects in Mashonaland East Province?

According to Table 1, the mean teacher responses in all items were less than 2.50. Hence, there was bad bond between the teachers and learners, time allocated to the teaching of technical subjects was not enough, the impact of the teaching was not positive, teacher attitude was poor, disabled learners were not getting adequate access to voc/tec education and teachers had no minimum pre-requisite qualification to assist learners with special needs.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Item</th>
<th>Mean</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A good bond between teachers and students</td>
<td>2.2</td>
<td>Disagreed</td>
</tr>
<tr>
<td>2</td>
<td>Adequate time allocated to teaching time on subjects</td>
<td>2.4</td>
<td>Disagreed</td>
</tr>
<tr>
<td>3</td>
<td>Impact of inclusive education</td>
<td>2.3</td>
<td>Disagreed</td>
</tr>
<tr>
<td>4</td>
<td>Are examinations results good for disabled learners</td>
<td>2.4</td>
<td>disagreed</td>
</tr>
<tr>
<td>5</td>
<td>Are staff development programs for SNE being conducted</td>
<td>2.2</td>
<td>Disagreed</td>
</tr>
<tr>
<td>6</td>
<td>Teacher attitude</td>
<td>2.4</td>
<td>Disagreed</td>
</tr>
<tr>
<td>7</td>
<td>Are disabled Learners given adequate access to voc/tec education</td>
<td>2.3</td>
<td>Disagreed</td>
</tr>
<tr>
<td>8</td>
<td>Do you have the right qualification to man inclusive education</td>
<td>1.19</td>
<td>Disagreed</td>
</tr>
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</table>

Furthermore, teachers did not have minimum qualification to man inclusive education. A study by Allam and Martin (2021) in Philippines on Issues and challenges in special needs education corroborated this study by showing that teachers taking learners with disabilities lacked the appropriate training on
special needs children. It is against such study findings that workshops should be conducted to staff develop teachers for them to handle these learners well.

Despite the fact that high schools did not have skilled manpower to man learners with special needs, no seminars were lined up for teachers at Ordinary Level although such curriculum exchange programs were reserved for Advanced level students at the same high schools. The lack of knowledge on inclusive education on the part of teachers who happened to be the curriculum implementers was not good for the teaching fraternity and this was so since most Teachers’ Colleges and Universities were churning out teachers without adequate training on Special Needs Education.

Teaching and learning is viable where there is a good bond between the teacher and the learner, but this study showed that there was a negative attitude on the part of teachers when working with the impaired learners. Teachers however expressed willingness to learn on how to assist the visually impaired learners. The study results showed that a handful of teachers had gone an extra mile in studying the methods, principles and practices in the technical subjects. The study findings are in sync with results from a study by Genç and Serpil (2020) which revealed that “existing support systems needed to be improved and awareness for these systems… be increased to make services more inclusive” (p.359). It thus implies that learner support encourages classroom teachers to carry out their teaching tasks with ease.

### Findings of this study

Findings of this study revealed that school administrators, stake holders and the Ministry of Primary and Secondary Education failed to give the necessary support to inclusive schools with special needs learners. Adequate time for practical subjects on learners with visual impairment was also not availed to departments making it difficult for teachers to adequately discharge their duties. Nooc (2019) in a study on the amount of time spend teaching students with special needs revealed that teachers spend much less time with learners with special needs while the reverse is always true. Assistive devices, braille text books and tools for the practical subjects were grossly inadequate for the proper teaching and learning of inclusive education.

### Research Question 2: How adequate is learner support given to inclusivity in technical subjects?

Table 2 shows that the mean of learner responses for questions 1 to 8 on the adequacy of learner support was less than 2.50.

This implies that text books with braille were in short supply, tools were inadequate, assistive devices were not adequately supplied, time allocation to the tec/voc subjects was not enough, the infrastructure was not friendly to people living with disabilities and no work shops were conducted for learners with special needs.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Item</th>
<th>Mean</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Are the text books with braille adequately supplied?</td>
<td>1.85</td>
<td>Disagreed</td>
</tr>
<tr>
<td>2</td>
<td>Are the tools supplied</td>
<td>2.34</td>
<td>Disagreed</td>
</tr>
<tr>
<td>3</td>
<td>Are the assistive devices adequately provided?</td>
<td>1.93</td>
<td>Disagreed</td>
</tr>
<tr>
<td>4</td>
<td>Is the time allocated to voc/tec subjects adequate for learning?</td>
<td>2.4</td>
<td>disagreed</td>
</tr>
<tr>
<td>5</td>
<td>Is the teaching materials used enough for your teaching?</td>
<td>1.82</td>
<td>Disagreed</td>
</tr>
<tr>
<td>6</td>
<td>Is the infrastructure friendly to learners living with disabilities?</td>
<td>1.91</td>
<td>Disagreed</td>
</tr>
<tr>
<td>7</td>
<td>How about funding?</td>
<td>2.3</td>
<td>Disagreed</td>
</tr>
<tr>
<td>8</td>
<td>Learner workshops</td>
<td>1.19</td>
<td>Disagreed</td>
</tr>
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inappropriate infrastructure and lack of funding were some of the challenges teachers faced in implementing inclusive education in schools in Mhondoro Ngezi of Zimbabwe. It thus follows that for the effective implementation of inclusivity in technical education, learner and teacher support is important.

Conclusions and Recommendations

Conclusions
The inclusion of learners with low vision in the teaching of technical subjects in the main stream in the province was not effectively conducted as most teachers were not trained to handle learners with special educational needs such as the visually impaired at colleges or universities. Specialist teachers did not get time to professionally develop their colleagues and hence subject teachers remained ineffective and incompetent. This lack of knowledge on the part of teachers could have led to attitudinal problems among teachers and students, where learners felt defeated and unable, whilst teachers felt helpless.

Recommendations
Based on findings of this study, it is recommended that school authorities should periodically initiate staff development programmes for subject teachers on how to effectively help learners with low vision in the respective schools. All technical teachers’ colleges in the country should include Special Needs Education (SNE) courses for all student teachers to effectively discharge their duties in the classroom. High schools managers in the province should ensure that learners with low vision get adequate time per week for assistance and remediation. School managers should work with non-governmental organisations and other stakeholders to acquire relevant equipment such as braille books and assistive devices for learners with low vision.

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