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Inclusive education in Tanzania: Are all learners identified and their needs known?

Frida D. Tungaraza
Department of Educational Psychology and Curriculum Studies, School of Education, University of Dar es Salaam, Tanzania

ABSTRACT

It is crucial for any country to identify and assess the special needs of all children upfront, i.e. before implementing any inclusive education program, if quality and equity education is to be provided. This paper reports the findings of a study which was conducted to examine the prevalence of refractive errors and other visual problems among unidentified school children in inclusive primary schools in Tanzania. A randomly selected 565 participants from ten primary schools in three districts in Tanzania were involved in this study. The districts were Dodoma, Mvomero and Same. Two hundred and sixty four (45.8%) of the participants were males and 301 were females. An optometrist used a Snellen Eye Chart to measure visual acuity and it was found that 57 percent of pupils in Dodoma had myopia, 38 percent had hyperopia and 24 percent had astigmatism. For Mvomero District, 14 percent of the participants had myopia, 26 percent had hyperopia and 29 percent had astigmatism. Twenty nine percent of the participants in Same had myopia, 37 percent had hyperopia and 48 percent had astigmatism. Eleven percent of all the participants had other eye conditions such as cataracts and amblyopia, which could lead to visual disabilities if not identified and treated early. The results of this study indicate that although Tanzania has set about establishing inclusive schools, the special needs of all children are not known because there are no well established screening procedures at birth, before children start school, and/or during school years. Screening and assessment plans are strongly recommended, if Tanzania truly aims at providing quality and equity education for all children.

INTRODUCTION

Education for learners with special needs in Tanzania started in 1950. At that time, only special schools were being introduced. Learners with disabilities were isolated from others physically, socially and academically. Efforts to establish inclusive schools in Tanzania started in 1998, when a pilot project

was launched in Temeke District in Dar es Salaam Region by the Government, with the help of the Salvation Army and UNESCO. The number of inclusive schools had increased, from the four (4) schools established in 1998, to 196 schools in 2010, which is certainly remarkable progress. However, the increase in the number of schools, in and of itself, does not mean that learning is taking place in those schools. For inclusive education to succeed, a lot of things must be put in place, and these include knowing the needs of all learners, up front, and providing them all with quality and equity education. In the year 2008, during the 48th Session of the International Conference on Education in Geneva, Switzerland, Helja Misukka, the State Secretary, Finland's Ministry of Education admonished:
Inclusive education will come true only if we understand that the future is not a force of nature − a flood or an earthquake. It does not just happen, we make it through our own choices. As I understand it, it is these crucial choices with their significant implications that this conference is all about.

Unfortunately, Tanzania does not have a routine system whereby children are screened for possible disabilities or other learning problems. Many learners with disabilities, who are enrolled in schools, are those whose disabilities are obvious. Children whose disabilities are not obvious go unnoticed because of lack of screening procedures of children at birth or at the time they start school. It is only logical that learners with special needs and those with possible educational disadvantages be identified as early as possible during the developmental period of the human life span. Timely identification of impairments or developmental problems can lessen the impact of the impairment on the functional level of an individual. This is important because it can stop the impairments from degenerating into a disabling condition. In order for schools to effectively design and plan for special and/or inclusive education programs, screening and identification should be given priority. Lerner (1981) argued that diagnosis and teaching are inseparable and interrelated components, which should go together. Lerner further contended:

> The instructional program that consists merely of the routine teaching of skills or the blind use of methods and materials without regard to diagnostic information about the unique problem of the child may not only waste time and effort, but[could] also prove detrimental to the child (p.86).

Assessment should take place as soon as possible to determine the problem; and once detected, the necessary type of intervention should be determined and effected as early as possible. Early intervention is critical for children because it offers 'lasting benefits and provides a sound foundation for future learning and development' (Frederickson & Cline, 2009, p. 128). However, early identification of problems in young children should not be the be all and end all, because some problems can debilitate older children also; and early identification of the emerging problem here, too, is crucial. Early

identification has definite advantages because 'prompt treatment can reduce the severity of the problem, and prevent it from affecting other areas of development' (Allen & Cowdery, 2009, p.245). In addition, it is understandable that 'early identification of potential difficulties could help parents and teachers forestall the problem before it starts' (Frederickson & Cline, 2009, p. 128).

Identification of visual impairments

Experiences that occur during the earliest years of life critically impact children's abilities to learn, move and interact with others (Malloy, Thomas, Schalock, Davies, Purvis & Udell 2009). Visual problems can be identified before the child starts school or just after starting school. Some children are born blind and others acquire blindness as they grow up. A person may be considered legally blind if he or she has a visual acuity of 20/200 or less in the better eye after the best possible correction, or if his or her field of vision is extremely restricted (Heward, 2009). Early vision screening for visual impairments is recommended as an important step in detecting visual impairment problems early. Early detection of visual problems is fundamental for designing early intervention as children with visual impairments may need help with special education equipment and materials, such as large print materials and Braille books (Herbert, 2005). Unfortunately, eye screening is not habitually undertaken in many developing countries. As a result children with visual impairments may not be diagnosed at early stage, thus their special learning needs may be overlooked.

The types and causes of visual impairments are many, and they include refractive errors, diabetic retinopathy, cataract, glaucoma, strabismus and retinopathy of prematurity. Refractive errors are among the leading visual impairments affecting school children worldwide (Fotouhi, Hashemi, Khabazkhood & Mohammed, 2007). If not identified and corrected, refractive errors may seriously affect learning for many children. In addition, other causes such as cataract may lead to blindness if not treated early.

Eye screening in Tanzania is not routinely undertaken at/or immediately after birth, or even before children start school. This means that problems of vision may not be identified early; this may lead to visual disabilities which could have been avoided. In addition, if visual problems are not identified early, learners' special needs may not be attended to and learning may suffer. No study had hitherto been carried out in inclusive primary schools in Tanzania to find out if there were learners with visual problems, who had not been identified. This study was carried out in an attempt, not only to fill that extant gap in knowledge, but, indeed, also to screen and identify learners in the inclusive schools who had visual problems, but were yet to be identified.

The main purpose of this study was to examine the prevalence of refractive errors and other visual conditions among unidentified school children in inclusive primary schools in Tanzania.

METHODS

Sites and participants: The study was conducted in ten inclusive primary schools in three districts in Tanzania. The districts were Dodoma Municipal, Mvomero District, in Morogoro Region, and Same Distrct, in Kilimajaro Region. The three districts were purposely selected, owing to their being among the districts with schools designated by the Ministry of Education and Vocational Training as implementing inclusive education. A randomly selected group of 565 participants were involved in this study, and were screened for possible visual problems. The participants, who were not yet identified as having visual impairments, were examined. Of the total participants, 193 (34.2%) were from Dodoma Municipal, 193 (34.2%) from Same District and 179 (31.7%) from Mvomero District. Two hundred and sixty four (45.8%) of the students screened were males and 301 (54.2%) were females.

Table 1: Social demographic variables of students screened for visual impairments.

Demographic variables	***% of responding students***
Sex	
Male	45.6
Female	54.4
Materials used in roofing houses	
Iron sheets	86.0
Grass	13.1
Soil	0.9
Sources of drinking water	
Tap water	95.5
Well	3.3
River	1.2
How do you come to school	
On foot	95.8
By bicycle	3.0
By car	0.9
How long do you travel to school	
Less than 10 minutes	29.6
10-20 minutes	28.1
Less than 30 minutes	20.7
30-60 minutes	20.1
More than 60 minutes	1.2

The researcher was interested in knowing where the children lived, the kind of the houses they lived in, source of drinking water and how they came to school each day as shown in Table 1. The main reason for this was to find out

if there was a correlation between visual impairments and these social demographic variables.

Table 2: Number of school children screened for visual problems for each participating school.

District	School	Number of children screened
Dodoma	Kiwanja cha ndege	47
	Matumbulu	53
	Matumba	31
	Uhuru	62
Mvomero	Makuyu	58
	Mtibwa	77
	Mvomero	44
Same	Hedaru	67
	Kisiwani	57
	Same	69
TOTAL	10	565

Instruments and procedures

A Snellen Eye Chart was used by an optometrist to measure visual acuity. Visual acuity, which is the ability to clearly distinguish forms or discriminate among details, is most often measured by reading letters, numbers or other symbols from the Snellen Eye Chart (Heward, 2009). Eye examination was conducted for each student individually in a selected room.

RESULTS

Prevalence of visual impairments among primary school pupils

When data were analyzed by district (see Figure 1), it was discovered that the majority of students diagnosed with myopia were in Dodoma (57%), followed by Same (29%), and then Mvomero (14%). Similarly, Dodoma had the highest proportion (38%) of students diagnosed with hyperopia, followed by Same (37%), and then Mvomero (26%). However, Dodoma was found to have the lowest proportion (24%) of students diagnosed with astigmatism. Same district had the highest proportion (48%) of students diagnosed with astigmatism, followed by Mvomero (29%). Thus, Mvomero had the highest proportion of students diagnosed with no visual impairments (emmetropia); 48 percent of students in Mvomero had no visual problems compared to 29 percent in Dodoma, and 24 percent in Same.

Besides the refractive errors that were obvious in some children, it was noted that 11 percent of the children screened also had other eye conditions which could lead to blindness. The conditions were cataracts, albinism and amblyopia. If identified early and given early treatment, problems such as cataracts and amblyopia could be cured. 'Albinism is an inherited disorder of pigment development that affects the eyes, skin, hair and brain' (Corn & Erin, 2010, p. 144). Amblyopia is the 'reduction in or loss of vision in the weaker eye from lack of use; caused by strabismus, unequal refractive errors or opacities of the lens or cornea' (Heward, 2009, p. 378).

In each district, it was also found that some children had no eye problems. Mvomero District had a big number of children (48%) who had no eye problems. Dodoma had 29 percent and Same had only 24 percent of all children screened who were found with no eye problems.

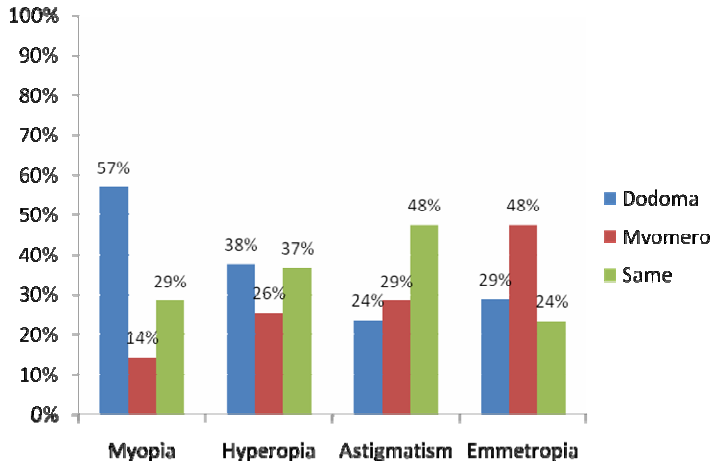

Figure1: Percentages of pupils diagnosed with refractive errors by district.

A one way between groups analysis of variance was conducted to explore the impact of location on the likelihood of visual impairment. It was then found that there was a statistically significant difference at the $p<.05$ level in diagnosis for visual impairment among the three district Dodoma, Mvomero and Same: $F(2, 536)=4.32$, $p=.014$. Despite reaching statistical significance different point, the actual difference in mean scores among the three districts was quite small. The effect size, calculated using *eta* squared, was .02.

Table 3: Post-hoc comparisons for the Three Groups (Dodoma, Same and Mvomero) Using Tukey HSD Test.

					95% Confidence Interval	
(I) Study site	(J) Study site	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Dodoma	Same	-.059	.131	.895	-.37	.25
	Mvomero	.312	.134	.052*	.00	.63
Same	Dodoma	.059	.131	.895	-.25	.37
	Mvomero	.371*	.135	.017*	.05	.69
Mvomero	Dodoma	-.312	.134	.052*	-.63	.00
	Same	-.371*	.135	.017*	-.69	-.05

*. The mean difference is significant at the 0.05 level

Post-hoc comparisons, as shown in Table 3, using Tukey HSD test indicated that the mean score for Dodoma (M=2.07, SD=1.39) was a bit significantly different from Mvomero (M=1.76, SD=0.76) at p=.05. Similarly, the mean score for Same and Mvomero districts were found significantly different at p=.017. Contrary to the above, the mean scores for Dodoma and Same were not significantly different.

Correlates of visual impairments among primary school students

Several social demographic variables, as shown in Table 1, were measured in an endeavor to understand the possible correlates of visual impairments among primary school pupils in the three districts surveyed. The social demographic variables included sex, social economic status as defined by the type of house they lived, source of drinking water, distance from school and transport means used to and from school.

The findings revealed that 86 percent of the responding pupils lived in houses roofed by iron sheets. It was further discovered that 13.1 percent of the pupils lived in grass roofed houses and 0.9 percent lived in soil roofed houses. Responding about the source of their drinking water, 95.5 percent of the pupils pointed out that they had tap water in their houses or near their houses. Some pupils (3.3%) indicated that they got water from wells and 1.2 of the respondents reported that they got water from rivers.

The respondents lived in different villages some near the schools and others far away from the schools. The time they took to get to schools differed, either due to distance from and/or means of transport to school. The researcher wanted to know how each pupil came to school. It was found that 95.8 percent of the pupils walked to school, 3.0 percent used bicycles and only 0.9 percent came to school by car. Due to these different means used to go to school, traveling time differed from one child to another. Some pupils (29.6%) took less than 10 minutes to school, while 28.1 percent of the pupils took between 10 and 20 minutes. It was also reported that 20.7 percent of the pupils took less than 30 minutes, 20.1 took between 30 and 60 minutes, and

1.2 percent of the pupils took more than 60 minutes from home to school. Walking long distances from home to schools might have lead to tiredness or late to school, and as a result effective learning for some students might have been affected.

Table 4: Logistic Regression Predicting Likelihood of Visual Impairment from Social Demographic and Economic Status Variables.

Variables						95.0% C.I. for EXP(B)	
	B	S.E.	Wald	Sig.	Exp(B)	Lower	Variables
Age	.040	.076	.271	.603	1.040	.896	1.208
Sex	.207	.232	.800	.371	1.230	.781	1.938
Parenting status	-.219	.239	.834	.361	.804	.503	1.285
House type	.385	.324	1.413	.234	1.470	.779	2.774
Water source	-.587	.477	1.519	.218	.556	.218	1.414
Distance from school	.229	.383	.359	.549	1.258	.594	2.662
Constant	-.443	1.132	.153	.695	.642		

A logistic regression analysis was performed to examine whether participants' demographic characteristics and social economic status predicted visual impairment problems, with type of diagnosis as the dependent variables and age, sex and social economic status as independent variables. The model containing predictors was not that much significant, X2 (7, N=557) =6.303, p = .505, indicating that the model did not predict visual impairment problems. As Table 4 shows, none of the predictor variables statistically significantly predicted the likelihood of visual impairment problems.

DISCUSSION

The findings from this study have revealed that a significant proportion of primary school pupils in the three districts visited had visual impairment problems. Hyperopia and myopia were found to be the most common forms of visual impairments. Fortunately, these refractive errors can be corrected through eye glasses or contact lenses, but without screening procedures some of the children will remain unidentified and this may adversely affect learning significantly. None of these pupils wore glasses or contact lenses at the time of the study, which meant that they were experiencing visual problems without their knowledge, nor the teachers' and parents' knowledge. These pupils' performances and learning might have been affected negatively due to these visual problems and the pupils might have been blamed for shortcomings they had no control over.

A similar study was conducted in Mwanza (Wedner et al. 2002) and it was found out that 6.1 percent of the students who took part in the survey had refractive errors, with myopia being the leading refractive error. However, in the present study, hyperopia was the leading refractive error, and it was found that a relatively higher proportion of school children had refractive errors, compared with those in the previous study.

The results of this study clearly pointed out the need to conduct early screening of children so as to identify visual problems for early intervention. 'Logically, to have any value, screening needs to lead to preventive services' (Lange & Thompson, 2006 p. 112). Delayed intervention may lead to adverse and persistent consequences for academic skill acquisition, and, in some cases, it may lead to total blindness. Many experts who work with children with disabilities believe that early intervention services improve educational and social outcomes (Gurainick, 1997, cited by Malloy at al. 2009). 'Clearly, early identification of potential difficulties could help parents and teachers to halt this process before it starts' (Frederickson & Cline 2009 p. 127).

Inclusive education principles require that all schools accommodate all children, regardless of their physical, intellectual, social, emotional, linguistic or other impairments. However, not all children will benefit from inclusive education if their problems, and hence, attendant needs are not known. What has been discovered in this study is just a wake up call that there are problems of implementation in our inclusive system. It is possible that there are many children in our inclusive schools who are at risk of failing in school due to unidentified problems. Screening procedures in different areas of development might reveal shocking results. If inclusive education is going to be successful in Tanzania, some changes must take place, one of them being requiring compulsory identification procedures for all children, followed by early intervention. Just labeling schools as inclusive schools, without knowledge of learners' individual needs, does fall far short of the goal and purpose inclusive education. As Rieser (2008) reminded us:

> UNESCO sees inclusive education as a process of addressing and responding to the diversity of needs of learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education. It involves changes in content, approaches, structures and strategies, with a common vision which covers all children within an appropriate age range. It embodies the conviction that it is the responsibility of the mainstream education system to educate all children (p.21).

Tanzania is working hard to increase the number of inclusive schools with a view to meeting the needs of every child. There is need, therefore, for institutionalized mechanisms and strategies for identifying, not only visual problems, but also all other difficulties that children may face. This knowledge may lead to early resolution of some of these problems, or, at least, to alleviating the severity of the problems. Children go to school to

learn, but learning may be seriously hampered by obstacles that are beyond the children's capabilities.

CONCLUSION

Meaningful academic inclusion is possible only when a student with disabilities has a reasonably good chance of successful academic performance' (Freund & Rich, 2005, p.44). There is much work to be done before successful inclusive education is achieved in Tanzania. Tanzania cannot realize quality education for all children. Her commitment to the Dakar Framework for action notwithstanding, and, despite increase in the number of inclusive schools, yet, the special needs of all children are not known. If the learners' needs are not known, teaching and learning may suffer. For, the purpose of inclusive education is not just to give all children a chance to be in school; but it is far more important to give them both requisite access *and* quality education! Tanzania needs to have serious plans and implementation strategies that will adequately meet the true purpose of having inclusive schools. When children's problems are known, early intervention may be planned and children's needs may be met in the classroom. It is important for the government to have proper inclusion plans and implementation strategies so that all children may benefit and the government's efforts may bear the intended fruits.

RECOMMENDATION

To that end, it is hereby recommended that a national assessment plan for all children, be established to allow early screening, both at birth, and before children start school. This will enable teachers to be aware of what type of children they have in the classroom and the kind of help those children need. In addition the government must make sure that early intervention is carried out so as to eliminate problems that can be eliminated, or at least to alleviate their severity. When the needs of all children are known upfront, then the possibility of achieving both quality and equity education will be in sight.

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