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# Perception of teachers on availability of instructional materials and physical facilities in secondary schools of Arusha District, Tanzania

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This study investigated on teachers' perception on availability of instructional materials and physical facilities in secondary schools of Arusha district, Tanzania. It utilized descriptive case study design and data was collected through questionnaire, interview schedules and documents. Simple random and purposive samplings were used to select a sample of 318 out of about 1049 selected school stakeholder in Arusha District. To establish validity, the instruments were given to experts for scrutiny who went through them against research questions and gave necessary recommendations for improvement before data was collected. A pilot study was conducted to schools which are not part of the sample and calculated using the SPSS. Reliability test yielded 0.727 Cronbach's Alpha for instructional materials and 0.778 for physical facilities which means the questionnaire was highly reliable. The study concludes that there is inadequate number of textbooks, reference books, maps and globes in schools under investigation due to increase of students in Community Schools. Further, schools have inadequate physical facilities such as classrooms, desks, chairs and the available classrooms are poorly constructed with inadequate spacing. Researchers recommend that Curriculum developers at Tanzania Institute of Education together with policy makers should come up with a policy guideline that will enhance provision of instructional materials and physical facilities.

Key words: Availability, adequacy, instructional materials, physical facilities, Arusha District

## INTRODUCTION

Performance by Secondary School leavers in Tanzania has been in a declining mode for the past few years. Despite the Tanzanian government initiatives, since 2001 the status of Secondary School Education has not been stable as indicated by low academic achievement in National Form Four Examinations results. For example, the proportion of students passing with Divisions 1, 2 and 3 has been declining since 2008 and it reached its critical point in 2012 (BEST, 2013). While there are many factors which can contribute to good performance of learners, Instructional

Materials and Physical Facilities are important factors which cannot be ignored. This is confirmed by Mbwambo (1990) in Makewa, Role and Ngussa (2012), who established that English teachers in Tanzanian Secondary Schools, for example, faced problems in teaching tenses, spelling, pronunciation, use of articles, summary writing, irregular verbs, punctuation, word order, and conditionals. He also argues that these problems are caused by the non-availability of instructional materials for teaching and learning. Based on this background, this study seeks to

investigate on availability of instructional materials and physical facilities in Secondary Schools of Arusha District.

A survey conducted by Hakielimu (2011) involving 36 schools in six regions of Tanzania showed that performance varies according to school type; private schools owned by Religious organizations performing better in comparison to Government schools and private schools (that is schools owned by non-government organizations and individuals). This survey also showed that 33% of the students in the government centrally owned schools and 15.9% in the schools owned by non-government organizations and individuals fail the examination. Further, Hakielimu (2011) showed that 65.5% of the students in the sampled Government community-owned schools failed the 2010 CSEE. This variation implies that there could be factors contributing to low academic achievement of students in community secondary schools.

However, most of the schools have acute shortages of instructional materials. Particularly, most schools seem to have scarcity of textbooks and reference books and physical facilities such as classrooms, desks and chairs. While acknowledging the government initiatives in providing quality education and increasing access to Secondary School Education, the academic achievement of the students in Community Secondary Schools are still poor. Hence, the purpose of this study was to examine the determinants of low academic achievement in Community Secondary Schools in Arusha District Tanzania with specific focus on adequacy of instructional materials and physical facilities.

### **Review of Related Literature and Studies**

This section searches for review of related literature and studies with regard to instructional materials and physical facilities.

### **Adequacy of Instructional Materials**

The primary purpose of teaching and learning process is to bring a significant change in behavior through active participation and critical thinking of the learner. This cannot take place without the availability of instructional materials (Afework and Asfaw, 2014).

Oladejo et al. (2011) referred instructional materials as objects or devices, which help the teacher to make a lesson much clearer to the learner. Instructional materials are also described as concrete or physical objects which provide sound, visual or both to the sense organs during teaching.

In this study Instructional materials involve students' textbooks, teacher's guides and reference books, maps and globes. These are key ingredients in learning and teaching thus enhance students' academic achievement (Wiggins,1998)cited in (Afework and Asfaw, 2014). Instructional materials are very important in the whole process of teaching and learning to any subject. They make

learning more pleasant to the students because they offer a reality of experience, which stimulates self-activity and imagination on the part of the students. They also supply concrete basis for conceptual thinking and hence, reduce meaningless word responses from students (Nyamubi, 2003). Likewise Campbell (1999) agreed that Instructional materials enhance the teaching/learning process by exhibiting information necessary to acquire knowledge and skills.

Tanzania Institute of Education (TIE) (2007) outlined that, apart from teachers, instructional materials are the most important resources needed at classroom level. If the curriculum is to succeed, the preparation and production of instructional materials must be handled with utmost care. The Ministry of Education and Vocational Training is responsible for putting in place criteria for evaluating and ensuring that only quality instructional materials are selected to support the teaching and learning in the classroom. It is expected that quality instructional materials shall:

- Correspond to the curricula and syllabi
- Be piloted or tried out in pilot schools
- Promote competences intended for the learners
- Be enough, adequate interesting and learner friendly especially for the learners with special needs.
  - Stimulate the learners' cognitive, affective and psychomotor domains during teaching/learning.
  - Address requirements of learners with special needs including the hearing and the visually impaired and physical handicapped.

There are basically two types of teaching/learning materials, namely; textual and non-textual. Textual Materials include printed materials such as textbooks; syllabi modules and manuals, reference books, charts and maps, newspapers, journals and encyclopaedias, texts in Braille, posters, fliers, photographs, booklets and brochures. On the other hand, non-textual materials include laboratory apparatus, prototypes, Braille machines, writing boards, weather stations, and samples of actual materials, ICT resources such as computers, internet connectivity, photocopying machines, printers and scanners (URT 2013).

Likewise, Kapoli (2001) noted that authentic materials enable the students to explore the language used in day-to-day life and which is tailored to their needs and interests. UNESCO (2000) reported that the provision of teaching and learning materials especially books is an effective way of improving results. However, the World Education Report (1998) reveals out that in many countries, conditions are difficult, whether they relate to the physical states of schools and the availability of instructional materials, class sizes, or the changing characteristics of the student population.

Mosha (2014) acknowledges that the quality of secondary school education cannot be separated from the context and circumstances that are found in schools. A number of secondary schools in Tanzania considered to

have shortage of instructional materials (Sumra and Rajani, 2006) are understaffed, and some teachers are under-qualified and de-motivated (Davidson, 2006; Komba and Nkumbi, 2008). Classrooms are also overcrowded, which affects teaching negatively (Wedgwood, 2007). Association for the Development of Education in Africa (ADEA) (2003) in support of this idea points out that, sufficient supplies of teaching materials and up to date student textbooks augment the teaching and learning process. Schools with sufficient infrastructure, laboratory space, electricity, water supply and sanitary facilities provide a comfortable and healthy environment conducive to learning.

Hakielimu (2008) and Laddunuri (2012) concur with ADEA (2003) that, most of secondary schools have an acute shortage of teaching and learning materials such as text books, classrooms as well as laboratory equipments and this is due to insufficient fund received from the Government aimed to cater for the same, hence limiting the improved academic achievement of Community Secondary Schools in Tanzania. Kimeu et al. (2015) in their study on Influence of instructional resources on secondary school students' academic performance in Makueni County, Kenya confirmed that inadequacy of teachers' reference books and guides, students text books, maps and charts negatively affected student's academic performance.

Also Walklin (2000) clarify that, instructional materials enhance perception and retention and so improve the efficiency of learning. The limitations of words in conveying new concepts are greatly minimized by the use of relevant teaching and learning materials. Materials which involve many senses are the most suitable. Furthermore, Ishengoma (2003) observed that schools and Colleges in Tanzania face an acute shortage of textbooks and reference books and that the Ministry of Education cannot provide them due to limited funding capacity. His study suggests that measures to overcome the shortage of materials include the establishment of well coordinate, materially-equipped, and convenient centres (schools) to allow adjacent schools to borrow the required materials from there. Moreover, Kiveria (1993) advises that potential people should be requested to help with the provision of learning materials. These include the community, resource persons, and education stakeholder. All these are teaching and learning materials used by both teachers and students to facilitate the teaching and learning process.

Adeyanju (2002) did a study in Nigeria on the importance of teaching resources and found that teachers, whether those on training or those who are qualified, perceive the use of learning aids in teaching as advantageous to both teacher and the students since their use reduces the talk and chalk method of teaching. On the same line of thought, Thompson (1996) notes that electronically related teaching-learning materials are expensive to purchase, maintain and operate. He also adds that the situation is more serious in developing countries such as Tanzania where a dilemma occurs as to whether to furnish the

concerned schools with inputs or arrest some social or economic maladies such as unemployment, diseases or poor communication channels first. Such an observation concurs with Mungai (2004) who declared that schools in Tanzania suffer from amenities such as water, electricity and proper buildings, sustainable for educational purposes. However, it is strongly recommended that each learner should possess the appropriate materials during the lesson if at all improved academic achievement is to be observed. Muthamia (2009) opined that, teachers can only be effective and productive in their work if they have adequate and relevant instructional materials. Likoko et al. (2013) reiterated that for effective teaching and learning, textbook and other instructional materials are basic tools, in absence or inadequacy makes teachers handle subjects in an abstract manner, portraying it as dry and non- exciting.

Adeogun (2010) discovered a very strong positive significant relationship between instructional materials and academic performance. According to Adeogun, schools endowed with more instructional materials performed better than schools that are less endowed. Adeogun (2010) also discovered a low level of instructional materials available in public schools and stated that our public schools are starved of both teaching and learning resources. He expresses that effective teaching cannot take place within the classroom if basic instructional materials are not present.

According to World Bank (2014) Tanzania through BRNE intends to achieve the objective to improve education quality in Tanzanian primary and secondary schools and providing adequate instructional materials is one of the areas which the programme claim to give priority. It is for this reason that this research was conducted to assess availability and adequacy of instructional materials in Community Secondary Schools in Arusha District Tanzania.

### **Adequacy of Physical Facilities**

Okomolate and Adesua (2016) refer to physical facilities as the school plant, that is, the school buildings, classrooms, library, laboratories, toilet facilities, offices and other materials and infrastructures that would likely motivate students towards learning. Schools exist for the purpose of teaching and learning. Human and material resources are deployed for this purpose. School physical facilities are the material resources provided for staff and students to optimize their productivity in the teaching and learning process. URT (2013) indicates that, physical facilities include classrooms, laboratories, libraries, ICT facilities, dormitories, health and kitchen facilities, as well as facilities for students with disabilities. Physical facilities provide and maintain, safe, clean, and creative educational environments that are conducive to high achievements of the students. Physical facilities strive to give students a comfortable atmosphere in which they work and learn. In developing countries like Tanzania, low levels of learning

among children can partly be attributed to poor or inadequate physical facilities of the schools.

Physical facilities are germane to effective learning and academic performance of students. In support of this, Hallak (1990) cited in Odeh et al. (2015) identified physical facilities as the main factor contributing to academic achievement in the school system. These include the school buildings, classrooms, furniture, libraries, laboratories, recreational equipment, apparatus and other instructional materials. While the availability, relevance and adequacy of these resource items contribute to academic achievement, the scholar acknowledged the fact that unattractive school buildings, inadequate classrooms, furniture such as desks and chairs absence of libraries and laboratories can contribute to poor academic achievement.

Likewise Likoko et al. (2013) commented that, schools that lack adequate classrooms for instance, students hold their lessons outside or under trees. During bad weather such lessons are postponed or are never held altogether. This interferes with syllabus coverage and students from such schools do not perform well in examination. World Bank publication (1990) cited in Owoeye and Yara (2011) linked performance of students to the provision of adequate physical facilities while referring to a survey of 51 primary schools in Botswana that students performed significantly better on academic tests when they had adequate classrooms, desks and chairs. Owoeye and Yara (2011) succinctly said that school buildings are very vital input to educational system; emphasizing that even though they do not teach but their use may facilitate or impede learning. However, he did not see school building as one of the critical variables affecting school academic achievement because he found no evidence to show that an expensive school building would necessarily improve academic achievement. Ogunmoyela (2009) lamented that school physical facilities like classrooms of public schools have no roofs, windows and doors, some walls are cracked, instructional facilities are lacking while teachers are frustrated consequent upon lack of equipment/facilities to meet educational endeavours.

Physical facilities are the fundamental factors in better learning and achievements of the students (Saeed and Wain, 2011). All facilities must be provided to the schools for the students' better, concrete, and real experiences. Physical facilities help to enhance the learning of the students. Research shows that availability of the physical facilities including classrooms, water, electricity, boundary wall, toilets, furniture, playgrounds, libraries, and dispensaries have a significant positive influence on the performance of the students and their achievement (Saeed and Wain, 2011).

The study undertaken by Shami and Hussain (2005) revealed that the availability of physical facilities in a school had a significance impact on students' performance. In the context to school facilities, environment in which the students learn is very crucial and without the suitable

environment effective learning cannot take place. Bruce (2006) has rightly called the learning environment as the third teacher but it is important that, the environment is not an end in itself; we have to look at the settings. Space is an important factor in providing a rich environment for learning, but it is only significant to the degree that it assists in providing a suitable climate for learning. Saeed and Wain (2011) confirms that, physical conditions have direct positive and negative effects on teacher morale, sense of personal safety, feelings of effectiveness in the classroom, and on the general learning environment.

Adeyemi and Igbeneweka, (2000) emphasized the significance of various categories of physical facilities towards the quality of education at the different levels of the educational system. Saeed and Wain, (2011) identified school buildings, classroom accommodation, furniture such as desks and chairs, libraries, laboratories, recreational equipment, apparatus and other instructional materials as contributing to academic achievements.

Ethnographic and perception studies have also indicated that inadequate school physical facilities have a negative impact on teachers' motivation that in turn negatively affects students' academic achievement (Earthman, 2002). In the same way Lawrence (2003) emphasized that the unavailability of school physical facilities negatively affects staff and student's motivation. A good school environment and adequate school with enough physical facilities have a significant positive effect on teacher's motivation and student's academic achievement. Additionally, O'Neill (2000) describes that school facilities impacts on student achievement, attendance and teacher retention. Reynolds (1996) found that a negative impact on student achievement where lack of school physical facilities.

Likewise, Khan and Iqbal (2012) asserted that, adequate and quality school physical facilities are basic ingredients for quality education and to achieve the intended goal of the school program. They also strengthen the idea by emphasizing that learning is a complex activity that requires students and teachers' motivation, adequate school facilities such as standardized buildings and classrooms with their facilities, instructional materials and equipment for child's development.

Furthermore, Hansen (2000) acknowledged that, there are several factors affecting students' academic achievement. These include internal and external classroom factors. He mentioned the classes size as a factor that can affect academic performance, with enough infrastructures, the smaller the class, the better the performance. In addition, Hakielimu (2011) agreed that most community secondary schools in Tanzania particularly those in rural areas are at disadvantaged because they lack adequate physical facilities and human resources. Most of the community secondary schools do not have enough classrooms.

A study by Karue and Amukowa (2013) in Embu day secondary schools in Kenya acknowledged that, factors

teachers postulated included lack of adequate physical facilities to enhance their teaching, inadequate learning materials and resources to the extent that some schools lacked totally in such important facilities as laboratories. Vandiver (2011) showed that a positive relationship exists between availability of physical facilities such as classrooms, desks, chairs, libraries, laboratories and students academic achievement.

Bakari et al. (2014) in the study on effects of physical facilities on performance in Kenya certificate of secondary examination in public schools in Bungoma acknowledged that, the academic performance of schools with adequate physical facilities has been improving over the years steadily while performance in schools that have inadequate physical facilities, in K.C.S.E fluctuated with time despite new reforms and innovations that have been designed and introduced to make education relevant to socio-economic and political aspirations and expectations of the society at large. A study by Likoko et al. (2013) on the adequacy of instructional materials and physical facilities in Kenya found out that some schools lacked enough classrooms, desks and chairs leading to overcrowding. Such conditions frustrated students during learning. This study therefore, investigated on adequacy of physical facilities such as classrooms, desks, libraries and laboratories in relation to students' academic achievement in Community Secondary Schools in Tanzania.

## RESEARCH METHODOLOGY

This study utilized a descriptive case study research design because this design deals with an in-depth multi-faceted investigation using both quantitative and qualitative methodologies in the examination of the single social phenomenon (Scheerens, 2000). Orodho (2012) asserts that, descriptive design is used in preliminary and exploratory studies to allow researchers to gather information, summarize, present and interpret for the purpose of clarification. It also involved an extensive review of literature in order to identify the context, structure and process through which implementation of Secondary School Curriculum is provided. Particularly, the study was conducted in Arusha District. Simple random and purposive sampling types were used to select research respondents. In this study 26 out of 41 community secondary schools were randomly sampled. Arusha District Council had a population of 1049 teachers who were sampled to get a representative sample to the study. However, to get heads of schools and District Educational Officer purposive sampling was employed. The sample size for teachers was based on the guideline proposed by Krejcie and Morgan (1970). The sample size of 318 respondents from the earlier stated population was determined. Of these, 291 were teachers, 26 were Heads of Schools and 1 was District Educational Officer.

## Validity and Reliability

Validity can be described as the extent to which the instrument measures what it purports to measure. Cohen et al. (2000) defines validity as the degree to which a measuring instrument satisfies the purpose for which it was constructed. Validity is that quality of a data-gathering instrument or procedure that enables it to determine what it was designed to determine. Likewise, Healy and Perry (2000) pointed that, validity determines whether the research truly measures that which it was intended to measure. To establish validity, the instruments were given to experts for scrutiny who went through them against research questions and gave necessary recommendations for improvement before data was collected.

According to Fraenkel and Norman (2006) reliability is a statistical concept and relates to consistency and dependability ie consistency of obtaining similar answers when measuring phenomena that have not changed. A reliable measuring instrument is one that, if repeated under similar conditions, would present the same result or a near approximation of the initial result. To establish acceptable reliability of the questionnaire, a pilot study was conducted to schools which are not part of the sample and calculated using the Statistical Package for Social Sciences. Cronbach's Alpha ( $\alpha$ ) was used to measure internal consistency strength whereby  $\alpha > .9$  = excellent,  $\alpha > .8$  = good,  $\alpha > .7$  = acceptable,  $\alpha > .6$  = questionable,  $\alpha > .5$  = poor and  $\alpha < .5$  = unacceptable. Reliability test yielded 0.727 Cronbach's Alpha for instructional materials and 0.778 for physical facilities which means the questionnaire was highly reliable.

## Statistical Treatment of Data

statistics in terms of frequency and percentage was employed to analyze and present data from the questionnaire. The open-ended questions in the questionnaire and interview schedules were analyzed through thematic approach together with literature review to enhance the discussion of findings in order to come up with proper interpretation of results.

## Presentation, Analysis and Interpretation of Data

In order to give the right interpretations, presentation of data was guided by two major research questions which state as follows:

### **What is the perception of teachers on adequacy of instructional materials in Community Secondary Schools in Arusha District Council?**

This research question was analyzed by the help of data obtained from the questionnaire through Mean Scores and Standard Deviations.

**Table 1.** Adequacy of instructional materials

SN.	Statement	Mean	STD Dev.
1	There are adequate teachers' reference books and guides.	2.4711	.85529
2	There are adequate students' textbooks.	2.4463	.90595
3	There are adequate reference books.	2.3249	.88294
4	There are adequate maps and globes.	2.1447	.92974

In order to determine the availability of instructional materials, the aggregate perception of teachers was interpreted based on mean scores and standard deviations of the responses to selected closed-ended items rated on four-point scale; and since the mean scores required proper interpretation, it was important to give the scale for interpretation as follows:

Means	Interpretation
3.50-4.00	Very Adequate
2.50-3.49	Adequate
1.50-2.49	Inadequate
1.00-1.49	Very Inadequate

As Table 1 indicates, all the four selected instructional materials were perceived by teachers to be inadequate, that is, falling in the category of 1.50 to 2.49 Mean Scores. Particularly, teachers perceived teachers guides and reference books (M=2.4711, STD, Dev. .85529); students' textbooks (M=2.4463, STD Dev. .90595); reference books (M=2.3249, STD Dev. .88294); and maps and globes (M=2.1447, STD Dev. .92974) to be inadequate in their particular schools. This is in harmony with what Sumra and Rajani (2006) established that community built schools in Tanzania lack most of the important facilities, e.g. laboratories and teaching and learning materials. As observed by Mlozi et al. (2013) the head count enrolment in community schools has increased in the context of scarce resources and a dire need for school infrastructure (classrooms, desks, laboratories, and library). Based on this finding, a genuine question could be asked: What could be the reason for such scarcity of instructional materials? In response to this question, the Review of SEDPI, the number of secondary schools has more than tripled between 2004 and 2009 to serve different underserved communities and so has the increased number of enrolees. Mlozi et al. (2014) further asserted that, despite these successes, there have been a number of challenges, including poor performance in secondary education examinations, with most students getting marginal pass of Division IV. Thus, inadequacy of instructional materials could be a possible determinant of poor academic achievement by students in Community Secondary Schools in Arusha District Council.

This indicates serious shortage of instructional materials in schools under investigation. This finding is in harmony with the information from the interview guide where it was reported that "teaching learning materials are not sufficient

especially for arts subjects, we don't have things like reference books, text books and also teaching aids" (Interviewee 1). Another school head revealed that "Teaching learning materials in my school are not sufficient. Teachers are struggling much to find ways to help students understand but no reference books, no teachers guide, no text books, and no teaching aids, hence we are doomed to serious students' failure." Nyamubi (2003) opined that teaching materials are very important in the whole process of teaching and learning. They make learning more pleasant to the students because they offer a reality of experience, which stimulates self-activity and imagination on the part of the students. They also supply concrete basis for conceptual thinking and hence, reduce meaningless word responses from students. This fact could imply that scarcity of teaching-learning materials could be a contributing factor to poor academic achievement among students in Community Secondary Schools in Arusha District Council.

Another interviewee maintained that "instructional materials are not sufficient; we don't have things like reference books, text books and also teaching aids. Science subjects books are there but no teachers" (Interviewee 3). Another head of school expressed similar response in the interview guide that:

Inadequacy of instructional materials is another serious problem facing my school. I have so many students because of the free education policy but teaching-learning materials are not available and the problem is even worse to Arts subjects because students opting for arts subjects are also more as compared to those who are opting for science subjects.

Likewise, interview with District Education Officer when asked the question on the adequacy of instructional materials had this to say:

Teaching learning materials are not enough especially to arts subjects, we don't have things like reference books for teachers and students, text books and also teaching aids. Fun enough for arts subjects we have at least good number of teachers although they are not enough but teaching learning materials are not there. Science subjects' books are there but no teachers.

Table 2 further, indicates that textbooks, the most basic instructional materials for students and teachers, are in serious scarcity as majority of teachers indicated that the ratio of textbook-students is 1:10+. This implies that one textbook is shared by 10 or more students in schools under investigation.

**Table 2.** Analysis of Textbook-Student Ratio

Student-Textbook Ratio	Frequency	Percentage
1:1	17	7.0
1:5	57	23.4
1:10	37	15.2
1:10+	133	54.5
<b>TOTAL</b>	<b>244</b>	<b>100.0</b>

**Table 3.** Inadequacy of physical facilities

SN	ITEM	MEAN	STD. Dev.	Interpretation
1	There is non-functional library (e.g. outdated and irrelevant books)	2.8884	.102254	Agree
2	There is lack of laboratories	2.5301	.97847	Agree
3	There is ineffective Science Laboratories	2.7623	.92566	Agree
4	There are no enough classrooms	2.7107	1.04217	Agree
5	There is inadequate classroom spacing	2.8300	1.08736	Agree
6	There is lack of desks and chairs	2.6762	1.05296	Agree
7	There is lack of libraries	3.0744	1.01985	Agree

When asked to explain the reasons for such scarcity, teachers attributed the scarcity to limited funds, poor budgeting and lack of government support. Other teachers indicated that the increase of students is not commensurate to the number of books allocated in schools under investigation. This implies that government has increased the number of students in public schools without consideration to increase the number of textbooks. Thus, it can be inferred that the increase of enrolment compromises the quality of education, and therefore makes the country not to realize the hopes of Big Results Now in Education (BRNEd). This finding proved that there is shortage of instructional materials in secondary schools in Tanzania. In order to solve this problem, it is very necessary for policy makers to put top priority in textbook distribution to secondary schools.

### **To what Extent are Physical Facilities Adequate in Community Secondary Schools in Arusha District, Tanzania?**

In order to ascertain adequacy of selected physical facilities in Community Secondary Schools, it was necessary to interview heads of schools. Particularly, one of school heads commented that, "Physical facilities like classrooms, desks are not enough at all, also library is available but not big enough to accommodate that big number of students and they are with limited resources" (Interviewee 6). Further, one of school heads indicated that "Classrooms are not enough, this leads to many students attending lesson in a single congested room of which a teacher cannot help managing them (Interviewee 9). It was also similarly expressed by another school head that "Classrooms are available but not enough and they are too small with few

desks (Interviewee 1).

Furthermore, the researcher had seven items in the questionnaire which appear in Table 3, to measure the adequacy of physical facilities. The perception of teachers about adequacy of physical facilities was indicated by descriptive statistics in terms of mean scores and standard deviations of the responses to the closed-ended questions rated on four-point scale; and since the ratings required the interpretation of the means, it was important to give the scale for interpretation as follows:

Means	Interpretation
3.50-4.00	Strongly Agree
2.50-3.49	Agree
1.50-2.49	Disagree
1.00-1.49	Strongly Disagree

Information from Table 3. indicates teacher acceptance of inadequacy of selected physical facilities for teaching and learning. Particularly, teachers perception was that, there are non-functional libraries (e.g. outdated and irrelevant books) (M=2.8884, STD Dev. 1.02254), there is lack of laboratories (M=2.5301, STD Dev. 97847), there is ineffective science laboratories (M=2.7623, STD Dev. 92566), there are no enough classrooms (M=2.7107, STD Dev. 1.04217), there is inadequate classroom spacing (M=2.8300, STD Dev. 1.08736) and there is lack of desks and chairs (M=2.6762, STD Dev. 1.01985).

Scarcity of selected physical facilities can therefore be attributed to as a major factor hindering academic achievement of learners in Community Secondary Schools in Arusha District. This finding is in agreement with the findings of Odeh (2015), Saeed and Wain (2011) and Owoye and Yara (2011) who identified physical facilities

such as classrooms, furniture such as desks and chairs, libraries, and laboratories as among the contributing to low academic achievement of students. The finding of this study is in corroboration with the findings obtained by Shami and Hussain (2005) who revealed that the availability of physical facilities in a school had a significance impact on students' academic performance. In the context to school physical facilities, environment in which the students learn is very crucial and without the suitable environment effective learning cannot take place. The study also confirmed the observation of Khan and Iqbal (2012) who acknowledged that, adequate and quality school physical facilities are basic ingredients for quality education and to achieve the intended goal of the school program. They also strengthen the idea by emphasizing that learning is a complex activity that requires students and teachers' motivation, adequate school facilities such as standardized buildings and classrooms with their facilities, instructional materials and equipment for child's development. The study finding supported the findings by Hakielimu (2011) who agreed that most community secondary schools in Tanzania particularly those in rural areas are at disadvantage group because they lack adequate physical facilities and human resources. Most of the community secondary schools are anticipated to have lack of enough classrooms.

### Conclusions and Recommendations

Based on presented, analyzed and discussed data, it is concluded that:

1. There is inadequate number of textbooks, reference books, maps and globes in schools under investigation. This is because the increase of students in Community Schools is not commensurate with the number of learning materials allocated in the schools. This is a serious problem facing schools under investigation and therefore contributing to low achievement in CSEE National Examinations.

2. Schools under investigation have inadequate physical facilities such as classrooms, desks, chairs and the available classrooms are poorly constructed with inadequate spacing. Therefore, scarcity of these physical facilities is attributed to low academic achievement of students in Community Secondary Schools in Arusha District, Tanzania.

Based on conclusions derived from the findings, the researchers give the following recommendations:

1. Curriculum developers at Tanzania Institute of Education (TIE) together with policy makers in the Ministry of Education and Vocational Training (MoEVT) should come up with a policy guideline that will enhance provision of enough textbooks, reference books and other instructional materials to facilitate smooth learning in secondary schools for better academic achievement of the students.

2. The government of Tanzania to ensure that, the increase of students in the schools should commensurate with the number of instructional materials allocated in each school. This will pave ways for students to reach their highest possible academic achievement.

3. The government of Tanzania should come up with a policy on provision of physical facilities in secondary schools to allow teaching/learning process take place easily.

### Conflict of interests

The authors declare that they have no conflict of interests

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