

Does School Environment Affect Student Achievement



“An investigation into the relationship between secondary school characteristics and academic performance in Tanzania”



December 2013



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Acknowledgements

This report was written by Dr. Kitila Mkumbo. Technical advice was provided by Elizabeth Missokia and Godfrey Boniventura Fausta Musokwa and Florige Lyelu. We also thank Mr Robert Mihayo and Elisante Kitulo for their editorial contribution in this report.

HakiElimu acknowledges the contribution made by teachers and students, who provided the information required for this study. Special thanks go to heads of schools, who were interviewed during the course of this research and to District Executive Directors and District Education Officers who allowed researchers to collect data in their districts. We appreciate their cooperation and willingness to work with us.

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ISBN 978-9987-18-042-4

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Abbreviations

BEST	Basic Education Statistics in Tanzania
CSEE	Certificate of Secondary Education Examination
DUCE	Dar es Salaam University College of Education
MoEVT	Ministry of Education and Vocational Training
NGOs	Non Governmental Organizations
UDSM	University of Dar es Salaam
TTU	Tanzania Teachers Union

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Part I: Introduction and background information

1.1 Introduction

In recent years, students' performance in the Tanzania Certificate of Secondary Education Examinations (CSEE) has been steadily declining, prompting concern in civil society and government about what might be responsible for this and how to address it. For example, as *Figure 1* below shows, pass rates in these examinations has fallen from 72.5 percent in 2009 to 50.4 percent in 2010, and then to an unprecedented 34.5 percent in 2012¹.

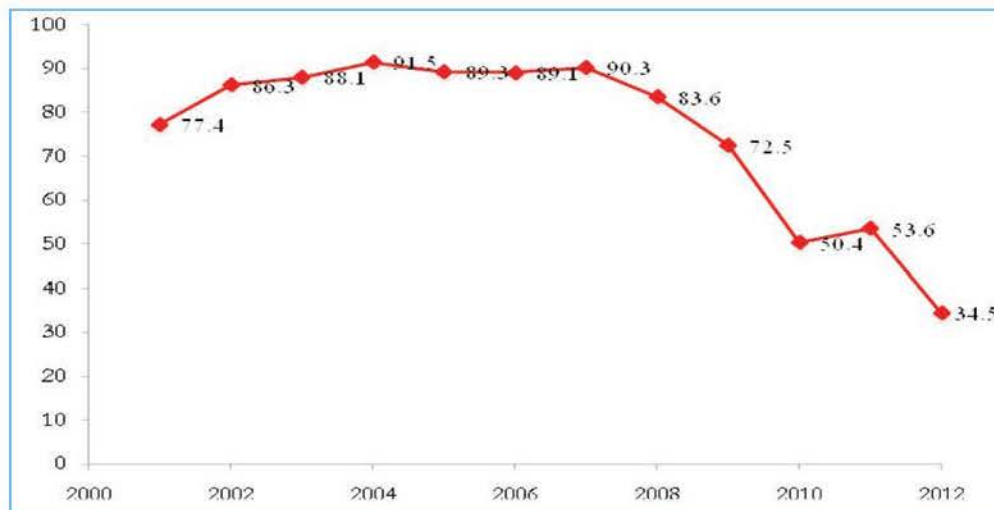


Figure 1: Percentage of candidates passing at the CSEE 2000-2012

Further analysis of the CSEE results shows that performance varies according to the type of school. For example, in a 2011 survey of 36 schools in six regions conducted by HakiElimu, performance in the CSEE varied according to school type; private schools owned by Christian organisations performed exceptionally well in comparison to Government schools and private schools (that is, schools owned by non-government organisations and individuals). This survey showed that 65.5 percent of the students in the sampled Government community-owned schools failed the 2010 CSEE. The survey showed that 33 percent of the students in the Government centrally-owned schools and 15.9 percent in the schools owned by non-government organisations and individuals failed the examinations. This variation in national examination performance in Tanzania implies that there could be school specific factors that contribute to the performance of students. It is useful to establish what these factors are in order to use this information to influence policy, planning and budgeting in the education sector.

Several factors have been attributed to students' academic performance at various levels of education. These include, for example, teachers' working conditions, availability of teaching and learning facilities such as books and laboratories, school and home factors such as type of school and the educational climate at home, student background factors, etc. Recent studies show that high quality school is the central factor in students' academic performance. Information is, however, limited on the specific characteristics that constitute high quality schools (Hanushek and

WoBmann, 2007). The effect of school climate on students' achievement has been confirmed in several studies conducted in different contexts. A survey of the effect of the school's social climate

¹ This percentage is after standardization following massive failure in the first released results whereby, the pass mark was only 5.9 percent.

on its achievement at Michigan Elementary School ² revealed a strong positive correlation between several school climate characteristics, including safety features, teaching and learning environment, interpersonal relationships and institutional environment (Brookover et al., 1978) and mean school achievement. Another survey involving 1,083 junior high school students in 116 classrooms that investigated the relationship between classroom environment and students' achievement revealed that specific classroom psychosocial environmental variables had significant effects on students' affective and cognitive outcomes (Frasser & Fisher, 1982). Thapa and colleagues (2013) reviewed 206 studies including experimental correlation and descriptive studies and literature reviews to examine the effect of safety, relationships, teaching and learning, institutional environment and the school process (Program implementation at school level including curriculum implementation, assessment process, staff and students communication) on students' achievement. The results of the review showed that the optimal presence of these different variables contributed significantly positively to several attributes of students' performance.

In light of the above context and background, this study sought to investigate the effect of school climate on the school's overall achievement (using performance in the 2012 CSEE as a measure of school achievement). In the context of this study, the term school climate was defined broadly to include a composite of variables in a school as perceived by members of the school, as well as actual observable school characteristics such as school libraries, laboratories, teachers' houses etc. (Brookover et al., 1978). It also refers to the norms, goals, values and interpersonal relationships, teaching and learning practices and organisational structures and how these affect students' academic achievement. Several school characteristics, including the following, were examined:

- School ownership
- School location (urban or rural)
- School resources
- Community involvement
- Teaching and learning environment factors such as:
 - Teacher-student ratio
 - Availability of teaching and learning facilities such as books, desks, chairs, etc
 - Availability of essential utilities such as water, electricity, toilets, etc
 - Teachers' characteristics, including teachers' professional qualifications, experience, age, sex, etc
 - Teachers' working conditions (availability of public services, housing, etc)
 - Teachers' motivation systems

1.2 Objectives of the study

The main objective of the study was to examine the relationship between school characteristics and overall achievement by establishing the following minor objectives:

- Documenting the quantitative and qualitative characteristics of secondary schools in Tanzania;

² A school for the first 4 to 8 years of a child's formal education, often including kindergarten. In Tanzania school starts at age of 4 for pre-schools and 7 years for primary school

- Assessing the impact of quantitative and qualitative characteristics of secondary schools on examination performance.
- Critically examining and documenting why secondary schools in Tanzania are in their current condition.
- Providing achievable recommendations for strengthening and improving performance in secondary schools in Tanzania.

1.3 Significance of the study

For almost three years now in Tanzania learners' performance in the National Form Four Examination has been deteriorating, hitting a historical low in 2012 when 65 percent of the candidates who took the exam failed. This situation has been a cause for alarm and calls from education stakeholders for immediate government intervention. The findings of this study are therefore expected to provide new knowledge about the factors behind good or poor student academic achievement with respect to school climate. In addition to that, the findings of this study will help to encourage policy makers and the community in general to strive to improve the school climate in order to affect student performance in national examinations.

Part II: Methodology

2.1 Design and methodology

This was mainly a quantitative study, employing a cross-sectional survey design. Data was collected through questionnaires and observations.

2.2 Data collection instruments

Three main data collection instruments were used; these are briefly described below:

2.2.1 Students' questionnaire

The students' questionnaire had two main parts. The first part consisted of participants' background information, including school name, sex, age, school level and subject specialisation (science, arts/humanities/social sciences and mixed). The second part consisted of 58 items assessing students' experiences of their school life.

2.2.2 Teachers' questionnaire

The second instrument was a teachers' questionnaire with a similar focus as the students' questionnaire. It also consisted of two parts; the first part consisted of participants' background information, such as school name, sex, age, teaching qualification and experience, education level and working hours. The second part consisted of 56 items assessing teachers' experiences of their school and the teaching profession in general.

2.2.3 Observation schedule

The third instrument was an observation schedule consisting of three main items. These were the number of students in each class; the number of teachers generally and per subject and the status of physical infrastructure. The assessment of physical infrastructure involved the following aspects:

- Number of classrooms, desks, chairs, etc.
- Number of functioning computers for students and teachers
- Availability of electric power
- Availability of staff facilities and services such as staff room and housing
- Status of books

2.3 Sampling procedures

2.3.1 Sampling of districts

This study mainly involved secondary school students and teachers from seven districts, namely Morogoro Urban, Dodoma Urban, Songea Urban, Moshi Urban, Kahama District (Shinyanga), Nzega District (Tabora) and Tunduma District. The Ministry of Education and Vocational Training (MoEVT) divides mainland Tanzania into six education zones for

administrative purposes; that is Eastern, Central, Northern, Southern, Western and Lake Zones. To get the sample districts in this study, one was randomly selected from each of the six education zones.

2.3.2 Sampling of schools

To select the schools in this study, all schools in the participating districts were listed according to the ownership category; that is, Government Central schools, Government Community schools, schools owned by faith based organisations (Christian and Islamic) and those owned by non-government organisations and individuals. From each of these categories, the participating schools were then selected conveniently and purposively as follows: up to three Government schools, one of which had to be a Government Central school while the others were Government community schools from a centre/urban based ward and/or a peripheral/rural based ward. Thereafter where possible, two schools owned by a faith based organisation were selected, with the one being Christian-owned and the other being Islamic-owned. Finally, one school owned by a non-government organisation and/or individuals, without a formal faith-based orientation, was selected.

2.3.3 Sampling of participants (students and teachers)

From each school selected above, the teachers' questionnaires were administered to all teachers present at the school on the day the survey was conducted. Then, from each of the sampled schools, between 20 and 30 students were expected to be selected from each school's Form 3 and Form 4 classes. Thus, a total of between 60 and 120 teachers and between 120 and 240 students from each school were expected to complete the questionnaires. Overall, at least 1,260 participants, with 420 teachers and between 840 and 1,360 students were expected to complete the questionnaires.

For each school an observation schedule was completed. Additionally, at least one head of school from each of the school categories above was interviewed. At least three interviews from each participating district were conducted.

2.4 Ethical consideration

The research clearance for this study was provided by the Vice Chancellor of the University of Dar es Salaam (UDSM) in accordance with the research clearance procedures at the institution. The research clearance was then applied to obtain research permits from the participating districts. The study protocol adhered to the standard research procedures, including obtaining verbal and/or written consent from participants prior to their participation, and those participants were debriefed of the study objectives and procedures.

Part III: Results

3.1 Introduction

To reiterate, this study addressed four major objectives namely: Documenting the quantitative and qualitative characteristics of secondary schools in Tanzania; Assessing the impact of quantitative and qualitative characteristics of secondary schools on examination performance; Critically examining and documenting why secondary schools in Tanzania are in their current condition.; and providing achievable recommendations for strengthening and improving performance in secondary schools in Tanzania.

Three main data collection tools were employed to address the objectives. These were students' questionnaire, teachers' questionnaire and observational schedule. Henceforth the results reflecting the objectives of the study are presented based on these three instruments; students' questionnaire, teachers' questionnaire and observational schedule.

3.2 Participants' background information

A total of 975 participants took part in the study, including 670 students and 305 teachers. The overall response rate was 77.4 percent, with 79.8 percent students' response rate and 72.6 percent teachers' response rate. The profiles of the participants are described below.

3.2.1 Students

Students' ages ranged between 16 and 24 years, with a mean age of 17.3 (SD 1.55). More than half (52%) of the students were female. The majority of the students were in Form 3 (49.5%) and Form Four (49.9%). The majority of students (41.9%) were in science streams, while 35.6 percent of students were in arts/humanities/social sciences streams. The remaining proportion (22%) of students was in a combined stream.

The majority of students surveyed were attending Government Community schools (38.4%), followed by those attending faith based schools (30.9%), then, students attending Government Central schools (20%) and finally, schools owned by non-governmental organisations or individuals (10.7%). Overall, the majority of students sampled were attending Government schools (58.8%), although the proportion attending private schools was also significant at 41.6%. The proportion of non-government schools in this study was significantly higher than the actual average nationally, according to the Basic Statistics in Education in Tanzania (BEST) booklet, about 29 percent of all secondary schools (N=4,520) are non-government schools (MoEVT, 2012). Table 1 summarises the demographic information of students in this study.

Table 1: Participants Demographic Information (Students)

Demographic Variable	N	%
<i>School category</i>		
Government (central) schools	134	20.0
Government (community) schools	257	38.4
Private-faith based schools	207	30.9
Private-non-government/individual owned schools	72	10.7

Demographic Variable	N	%
<i>District representation</i>		
Dodoma Urban	67	10.0
Kahama District	120	17.9
Morogoro Urban	118	17.6
Moshi Urban	110	16.4
Nzega District	78	11.6
Songea Urban	101	15.1
Tunduma District	76	11.3

Sex	N	%
Male	318	48
Female	345	52

School Level	N	%
Form One	2	0.3
Form Two	2	0.3
Form Three	331	49.5
Form Four	334	49.9

Subject Stream	N	%
Science and Mathematics	280	41.9
Arts/Humanities/Social Sciences	238	35.6
Mixed	147	22.0

3.2.2 Teachers

Of the 305 teachers who completed the questionnaire, about two thirds (67.9%) were female. The proportion of female teachers in this study generally reflects the proportion of female teachers in secondary schools in Tanzania. There were 65,086 teachers in secondary schools in Tanzania in 2012. Just above a third (31.6%) of these were female (MoEVT, 2012, p.96).

The majority of teachers had a degree in education qualification (57.4%) while a third (33.2%) had a diploma in education as their teaching qualification and 9.1% did not have

a teaching qualification. Less than a third (30.1%) of the teachers were in science, while 39.4% were arts/humanities/social science teachers and 20.9% were language teachers.

The teachers' age in this survey ranged between 24 and 60 years, with a mean age of 31.7 (SD = 8.58). Teachers' years of teaching experience ranged between one and nine years, with a mean years of teaching experience of 6.5 years (SD = 8.15). Teachers spend an average of 19.7 hours on teaching tasks weekly. Table 2 summarises the demographic information of teachers.

Table 2: Participants Demographic Information (Teachers)

Demographic Variable	N	%
School category		
Government (central) schools	62	20.3
Government (community) schools	130	42.6
Private-faith based schools	76	24.9
Private-non-government/individual owned schools	37	12.1
District representation		
Dodoma Urban	31	10.2
Kahama District	47	15.4
Morogoro Urban	56	18.4
Moshi Urban	44	14.4
Nzega District	33	10.8
Songea Urban	59	19.3
Tunduma District	35	11.5
Sex		
Male	190	67.9
Female	90	32.1
Teaching qualification		
Diploma in Education	99	33.2
Degree in Education	171	57.4
Non-Education Qualification	27	9.1

3.3 Students' perceptions of their school life

The school climate is largely measured from the perspective of the school residents. In this case, students and teachers were given an opportunity to express their views and opinions about their experiences of their schools through questionnaires with different items. The students' questionnaire consisted of 58 items assessing students' views about various aspects measuring their school life experiences.

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The results show that students were satisfied with many of the school climate variables. For example, 76.6% of the surveyed students reported that they strongly agreed (33.3%) and agreed (43.3%) to the statement 'I feel safe at school.' This implies that the majority of students considered their schools as safe places for learning and living, which is an important factor for effective teaching and learning to take place. Furthermore, the majority of students believed that their schools were effective in preparing them for life after school. For example, 78.9% of the surveyed students strongly agreed (40.8%) and agreed (38.1%) that 'this school is preparing me well for what I want to do after secondary school.'

The majority of students also expressed satisfaction with the way they were treated by school authorities, including teachers and school administrators. For instance, 79.9% of the surveyed students strongly agreed (37.3%) and agreed (42.6%) that 'I am treated with respect by teachers,' and 76.9% of the students strongly agreed (33.8%) and agreed (43.1%) with the statement that 'I am treated with respect by school administrators.' Similarly, contrary to popular beliefs and claims by teachers that students in Tanzania these days do not have much interest in learning, the majority of students in this survey seemed to value learning as the most important aspect of their school life. For instance, 81.5% of the surveyed students strongly agreed (50.6%) and agreed (30.9%) with the statement that 'the person responsible for what I learn is myself', and 95.2% of the students strongly agreed (74.8%) and agreed (21.4%) that 'I like to learn'.

Using principal factors analysis, the 58 items were reduced into four that reflect the variables that constitute the school climate, namely *safety*, *relationships*, *teaching and learning* and *institutional environment*. Then, students' rating was measured on each of these variables. The results are summarised in Figures 1 and 2.

The results show that, overall, students rated the school climate very highly (74%), with the implication that they were happy with it in relation to its role in supporting the learning processes. The rating was particularly high for institutional environments where 79% of the students strongly agreed (22.1%) or agreed (56.9%) that the institutional environment was satisfactory.

When the results were analysed by school type, it emerged that students attending schools owned and managed by non-government organisations/institutions and individuals were most satisfied with their school climate, where 91% of the surveyed students rated the school climate as satisfactory. Comparatively, 86% of the students attending schools owned and managed by central government and 84 percent of the surveyed students attending schools owned and managed by local government rated the school climate as satisfactory.

Nevertheless, it should be noted that these results only capture the self-report measures, which are subject to potential bias. Previous research has reported the limitations of self-report measures for young people for a variety of behaviours (Brener, Billy & Brady, 2003).

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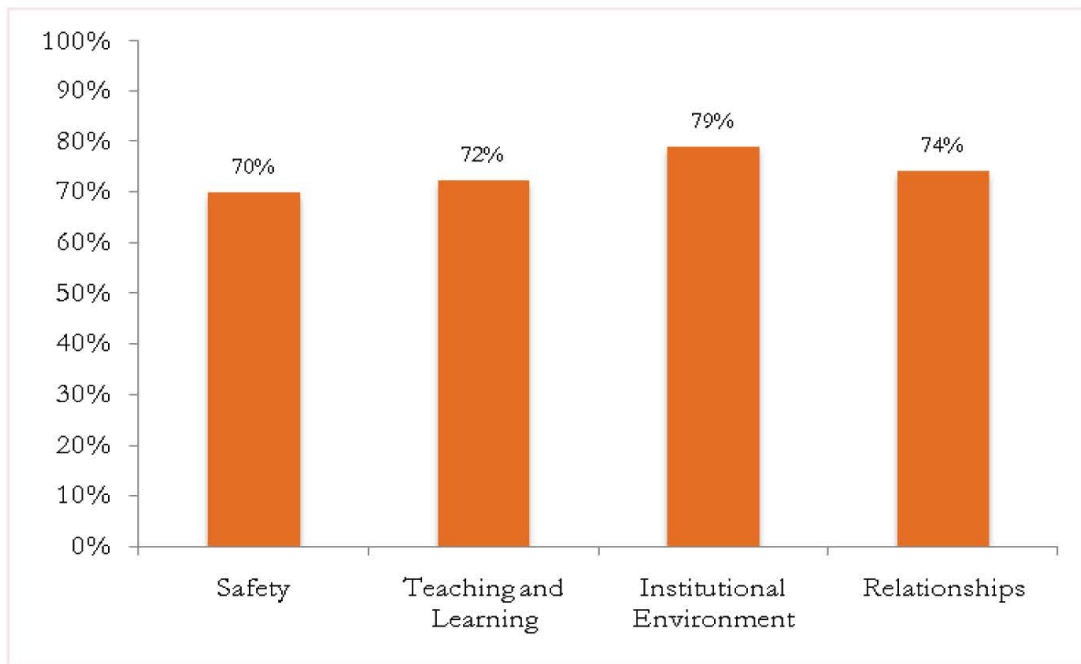


Figure 2: Percentage of students reporting being satisfied with school climate variables

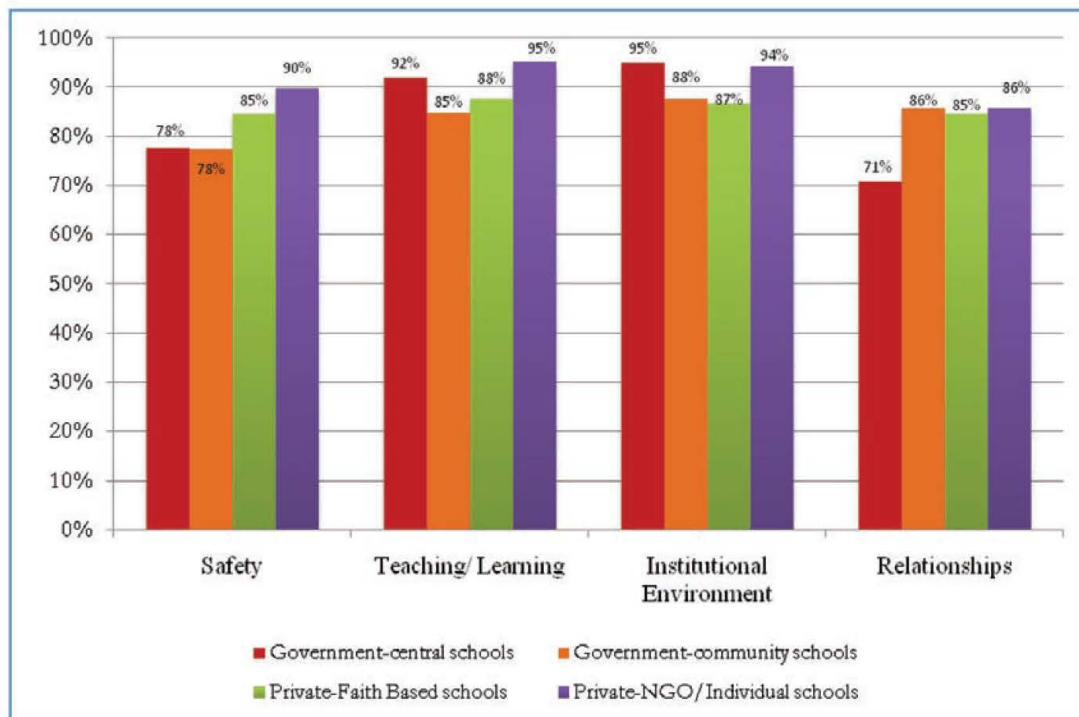


Figure 3: Percentage of students reporting satisfaction with school climate variables by school ownership

3.4 Teachers' perceptions of their school life

The results show that, overall, teachers' rating was positive for many aspects assessed, indicating that they were generally satisfied with the school climate. For example, 82.3% of the surveyed teachers strongly agreed (32.2%) and agreed (50%) with the statement that 'I feel like I belong at this school'. Almost three quarters (73.1%) felt that they were recognised for their good work and 86.1% reported that they loved working at their schools. Again, 88.5% of the surveyed teachers strongly agreed (53.5%) and agreed (35%) with the statement that 'I like teaching', while 80.4% strongly agreed (44.9%) and agreed (35.5%) with the statement that 'I experience the job of a teacher as interesting.' Additionally, 70.2% of the surveyed teachers strongly agreed (33.8%) and agreed (36.4%) that 'morale is high on the part of teachers.' This implies that teachers were fairly strongly intrinsically motivated for their profession.

However, the proportion of teachers approving of students' motivation to learn was relatively low compared to other variables. For instance, only 60.4% of the surveyed teachers strongly agreed (21.9%) and agreed (38.5%) with the statement that 'morale is high on the part of students.'

Furthermore, while the majority of teachers believed in the importance of communicating with parents regarding their children are learning process, only a few of them reported actually communicating with parents. For example, while 93.3% of the surveyed teachers strongly agreed (53.4%) and agreed (39.9%) with the statement that 'I think it is important to communicate often with parents,' less than three quarters (72.3%) reported communicating often with parents about their children's progress. Just over half (54.1%) of the surveyed teachers reported communicating with parents often about class activities. This suggests that parents' involvement and participation in their children's learning was generally low.

The results of this study are generally consistent with those of previous studies. A similar study in 2012 involving 303 teachers selected from six regions in Tanzania revealed that teachers had strong intrinsic motivation³ for their profession but the external (extrinsic) motivation⁴ was poor (Mkumbo, 2013). This suggests that teachers are not satisfied with their working conditions although they love their profession.

3.5 Results of school observation

An observation survey was carried out in all participating schools in all the seven participating districts. A total of 36 schools were visited and observed. The observation was done focusing on general school physical features in relation to teaching and learning, as well as the interaction among students and teachers. Nevertheless, four schools were not included in the final analysis because they were either only Advanced Level schools or they had not done any National Form Four Examinations as yet. The results are presented both generally and per school ownership category.

3.5.1 Teachers

The number of teachers ranged between 10 and 71 teachers, with a mean average of 31.4 teachers (SD = 15.5). This indicates the number of teachers varied greatly from one school to another. The number of teachers was smallest for Physics, with a mean average of only 2.4 teachers (SD = 1.66), and range between 0 and six teachers. This means that some schools

³ Refers to doing something because it is inherently interesting and enjoyable. When one is intrinsically motivated can act or do something for fun or challenge entailed rather than of external pressure or rewards.

⁴ Doing something because it leads to separable outcome (rewards or pressure)

did not have physics teachers at all. Surprisingly, Mathematics had the highest number of teachers of all subjects, with a mean average of 7.4 teachers and a maximum of 12 teachers. Nevertheless, some schools did not have Mathematics teachers at all.

Surprisingly, and somewhat unexpectedly, civics was among the subjects with the lowest proportion of teachers, with a mean average of only 2.9 teachers, ranging between 1 and 8 teachers ($SD = 1.54$).

Overall, as Table 3 shows, the distribution of teachers across schools was not even, with some schools having many teachers in certain subjects while others had an acute shortage. On average, science subjects had fewer teachers than arts and social science subjects.

Table 3: The Distribution of Teachers in Surveyed Schools per Subject

<i>Subject</i>	<i>Number of Teachers</i>				
	<i>N (Schools)</i>	<i>Mini- mum</i>	<i>Maxi- mum</i>	<i>Mean</i>	<i>SD</i>
	23	10	71	31.4	15.5
Physics	29	0	6	2.4	1.7
Chemistry	30	1	8	3.3	1.9
Biology	31	1	9	3.1	1.9
Mathematics	31	0	12	7.4	6.4
English	34	1	10	4.2	2.3
Kiswahili	33	1	12	4.1	2.5
Other Languages	16	1	13	4.8	4.5
History	31	1	19	4.7	3.7
Civics/General Studies	31	1	8	2.9	1.5
Other arts/Social Sciences	34	1	17	4.0	3.1

3.5.2 Teacher – Student Ratios

Teachers are said to be the most valuable resource in an education establishment. This means the academic performance of students and a school largely depends on the presence of qualified and committed teachers. In this research we assessed the availability of teachers in relation to the number of students in a school. The results are summarised in Table 5.

As Table 5 shows, the teacher-student ratio was good for all categories of schools. The highest ratio was observed in privately owned schools (1:33) and Government community schools (1:30). In general, the teacher student ratio was better than the minimum ratio set by the Ministry of Education and Vocational Training, which is 1:40. This means that the shortage of teachers in the observed schools was not one of the problems encountered and could not be contributing to poor students' performance in their national examinations.

Table 4: Teacher Student Ratio in Observed Schools

	<i>Students</i>				<i>Teachers</i>				
	<i>Min.</i>	<i>Max.</i>	<i>Mean</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	<i>Mean</i>	<i>SD</i>	<i>T:S Ratio</i>
Government Central Schools	210	974	592	540	19	47	34.5	13	1:17
Government Community-owned schools	524	1311	849	347	12	54	27.8	14	1:30
Faith-based schools	411	653	532	171	21	54	32	15	1:17
Private schools	398	1197	797.5	565	10	71	36	26	1:33

3.5.3 Physical facilities

The availability of functional physical facilities varied greatly between one school and the other. For example, as Table 4 shows, some schools did not have computers at all while others had a considerable number (as high as 80). Some schools had a good number of desks and chairs for students, while others had a very small number of these items.

Table 5: Status of Physical Facilities in Observed Schools

Physical Facility	Proportion				
	<i>N (Schools)</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>SD</i>
Classrooms	33	3	32	14.7	7.1
Functioning desks for students	32	54	1500	604.1	337.2
Functioning chairs for students	29	12	2000	575.4	405.9
Pit latrines for boys	28	3	92	12.6	19.7
Pit latrines for girls	32	2	100	16.0	22.7
Computers available	25	0	80	14.2	17.1
Computers functioning	20	0	80	13.3	18.2

The results of observation also show that only a third (33.3%) of the schools surveyed had some form of power while the remaining proportion (66.7%) did not have power at all. Almost two thirds (64.5%) of schools having power were connected to the national grid, while the remaining proportion used power from other sources, such as biogas, solar and generators. Of the schools surveyed, staff rooms were available in 78.1 percent (N = 25).

3.6 Academic achievement of the observed schools

The school academic achievement was assessed on the basis of the schools' performance in the 2012 CSEE. Results show that the performance of the visited schools varied greatly between 0 and 86%; that is, the highest performing school had a pass rate of 86% while the least performing school had all students failing the 2012 national form four examinations. The mean pass rate was 20.4 percent (SD = 27.4). This performance is below the national performance average whose pass rate was 33.5%.

The results were analysed with respect to school ownership category. For the purpose of this analysis, schools were categorised into four categories, namely Government Central schools, Government Community schools, Private schools owned by faith-based organisations and Private schools owned by individuals or non-government organisations. The results are summarised in Figure 4 and Table 6.

As Figure 4 shows, the highest pass rate was in Government Central schools, with an average pass rate of 54.7%. The pass rate for these schools ranged between 12% and 77% (SD = 36.9). The least performing schools were Government Community schools with an average pass rate of 7.8%. The pass rate for these schools ranged between 0 and 24% (SD = 7.1).

Analysis was also done in terms of public VS private schools. All Government Central and Government community schools were considered public schools (N =12) while faith based and schools owned by non-governmental organisations or individuals were considered private schools (N=10). With this analysis, private schools performed relatively better than public schools. The mean pass rate for private schools was 21.5 percent and ranged between 0 and 86 % (SD = 29.1) while the mean pass rate for public schools was 19.5 percent and ranged between 0 and 77% (SD = 27.1). This implies that, generally, private schools tend to perform better than public school in the CSEE.

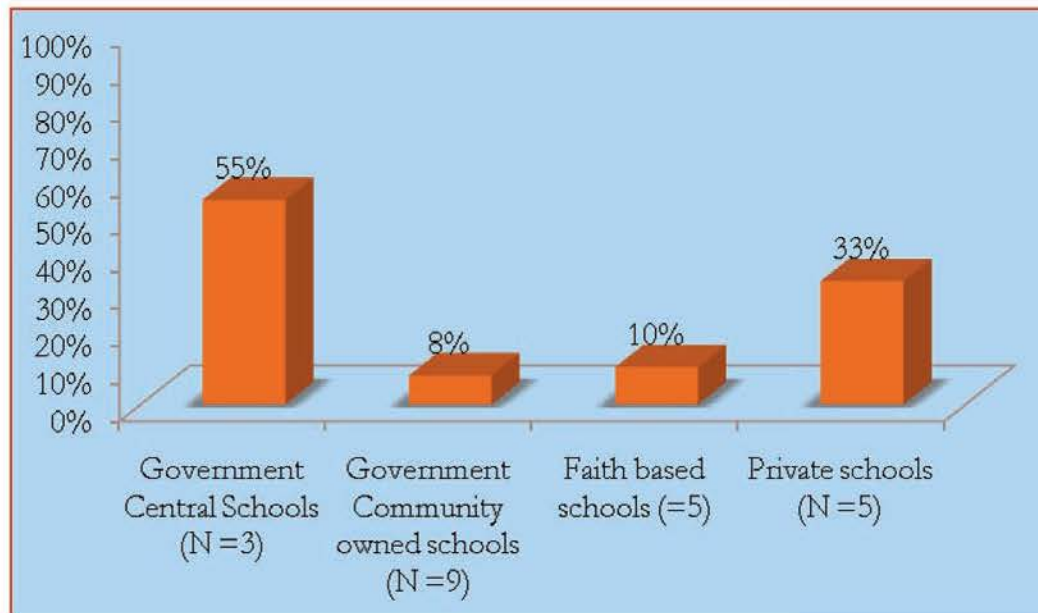


Figure 4: Pass rate at the CSEE for the visited schools (N = 22)

Table 6: Performance by School Ownership

	<i>N</i>	<i>Mean Pass Rate (%)</i>	<i>Minimum Score</i>	<i>Maximum Score</i>	<i>SD</i>
Government Central Schools	3	54.7	12	77	36.9
Government Community owned schools	9	7.8	0	24	7.1
Faith based schools	5	10	0	20	7.5
Private schools	5	33	0	86	38.9
Public schools	12	19.5	0	77	27.1
Private schools	10	21.5	0	86	29.1

A one way between groups analysis (group study) of variance was conducted to explore the variation in performance on the basis of school ownership. There were four categories of school ownership as described in the previous sections. There was a statistically significant difference at the $p < .05$ level in the performance for the four groups: $F (.87, 2) = .04, p = .024$. The magnitude in the difference was large (eta squared = 0.4).

An independent –samples t-test was conducted to compare the performance for public and private owned schools. There was no significant difference in performance scores between public schools ($M = 19.5, SD = 27.1$) and private schools ($M = 21.5, SD = 29.1$); $t (22) = .17, p = .87$, two tailed. The magnitude of the difference in the means (mean difference =7.6, 95%C: 27.03 to 27.31) was very small (eta squared = 0.001).

Part IV: Conclusions and Recommendations

4.1 Conclusions

This study assessed the relationship between school climate and academic achievement. The assessment was done from three levels. The first and second levels involved assessing students' and teachers' perceptions of their school environments as these relate to teaching and learning. The third level involved a physical observation of the school environments as this relates to teaching and learning.

The results show that students and teachers were generally satisfied with most of the aspects of the school climate variables that were assessed, with the implication that they are happy with their schools as learning places. Students' and teachers' perceptions were positively high for all the four aspects of school climate assessed, namely safety, relationships, teaching and learning, and institutional environment. Teachers and students in schools owned by private organisations and individuals expressed higher satisfaction levels with their school climates than their colleagues in schools owned by the Government. Correspondingly, the mean pass rate for schools owned by private organisation was relatively higher than that of the schools owned by Government. This implies that, positive perception about the school climate is related to positive school performance.

Nevertheless, there were two aspects that received poor rating by teachers. Firstly, teachers had a low opinion of students' motivation to learn. The majority of teachers thought that students were not motivated to learn. Secondly, parents' involvement in school activities seems to be dismal from the standpoint of teachers. Only a few teachers surveyed reported communicating with parents on their children's education. This is a problem that can affect academic achievement because parents' involvement in their children's education has been associated with increase in students' academic performance (University of New Hampshire, 2008; Jeyness, 2005).

The results of this study confirm the importance of school climate in school academic achievement. In this study, however, though most of the requisite factors for teaching and learning seemed to be available in the observed schools, except for some specific items such as lack of teachers in some science subjects, the performance of the visited schools was not that impressive. This suggests that there are more proximal factors contributing to students' learning other than just school climate as perceived by teachers and students. This calls for the need to undertake a more comprehensive analysis of the school climate factors related to school academic performance.

These results should be interpreted cautiously because, first, the majority of the schools sampled in this study generally performed poorly with an average pass rate of only 20.4 %, less than the national average (33.5%), with the exception of Government central schools. As such, it is not easy to statistically note the effect of the school climate on performance. Second, the analysis involved only 22 schools. Though these schools were randomly selected from zonal clusters they are too few to make meaningful generalisations, especially given that there is great variation in schools in Tanzania with respect to social-economic and demographic conditions. A larger sample is certainly needed to enhance the credibility of the conclusions highlighted in this study.

The Government Central schools were exceptional in this regard with respect to academic performance, with a pass rate of 54.7 percent. The sampled Government Central schools are old schools that were once selected among the 'special schools' that accommodated pupils with high pass marks from primary school. As such, they are among few Government owned schools with basic facilities and highly qualified teachers. More follow-up is, however, needed to establish concretely the reasons for these schools' exceptional performance.

Clearly, therefore, the academic achievement of the surveyed schools seems to be affected by teaching and learning processes rather than school climate. Though in many aspects there are clear deficit conditions for teaching and learning, teachers and students do not seem to perceive these negatively and they do not think that the apparent school conditions do affect their teaching and learning endeavours.

Teachers, however, reported that they value their roles and were happy to assist their students (intrinsic motivation), but they thought that their employer did not support them in fulfilling their obligations (extrinsic motivation). This means that teachers need to be motivated by improving their working conditions if they have to put their maximum potential into the teaching profession. Additionally, teachers are not evenly distributed across schools. While some schools tend to have an oversubscribed number of teachers in certain subjects, some schools face serious shortage of teachers. This is particularly the case for science subjects, though some social science subjects also face a critical shortage of teachers.

4.2 Recommendations

In light of the above conclusions, the following recommendations are made to improve teaching and learning processes, as well as for further research.

- There is a need to invest more in the quantity and quality of teachers. The education reforms focusing on teachers should go beyond increasing the numbers by increasing the admission rates of education students in various institutions of learning. The focus should equally be placed in improving teachers' motivation and commitment to teach so that they are able to remain in schools for a considerable period of time.
- Parents' involvement in their children's education is an important factor in improving the latter group's academic performance. The findings of this study show that parents' involvement in their children's education was low. This calls for the need to launch systematic mass campaigns aimed at sensitising parents to take part in the education of their children. Parents' involvement in this regard should go beyond monetary or material contribution but focus on their participation in helping their children learn.
- As in previous studies, the working conditions for teachers emerge as a critical factor in motivating teachers to undertake their roles more effectively and efficiently. There is therefore a need for the Government and other employers to pay attention to improving teachers' working conditions so as to raise their motivation to engage more effectively in teaching.
- There is a need to design a clear formula in the allocation of teachers so that teacher allocation can be done evenly across schools. Alongside this recommendation, it is important for heads of schools to improve their managerial competencies by developing skills on teacher retention mechanisms in their respective areas. This calls for a special training of heads of schools on teachers' motivation and retention mechanisms. In the context of the findings of this and previous studies, promoting teachers' motivation and commitment seems to be more of a priority issue than the recruitment of new teachers.
- Nothing can be achieved in education if teachers are not well treated. The government should pay teachers well and prepare good teaching environments in schools. It should invest adequately in the provision of teaching and learning materials for teachers. The government should also stop neglecting teachers' important demands like provision of teaching and

hardship environment allowances due to the fact that they are contributing to ineffective teaching and poor performance of students.

- MoEVT and Tanzania Teachers Union (TTU) should have a common meeting at least once a year to discuss and have a common stand on matters concerning our education. This meeting will create a sphere of cooperation and harmony between the two always conflicting side and ultimately come to an agreement on how to handle teachers long term problems that affects students performance.
- The results of the present study are based on the analysis of a sample of only 22 secondary schools out of the more than 4,000 schools in Tanzania. As such, the foregoing conclusions are only indicative rather than conclusive. Future studies are needed to observe the teaching and learning processes on a large scale to establish more precisely the causal factors for students' low academic achievement in secondary schools. There is also a need to examine the variation in school academic performance by school ownership category more systematically by extending the analysis to cover all schools in the four school ownership categories.
- This study did not assess teachers' level of involvement in the teaching activities, as well as their teaching competencies. Future studies could systematically observe over a considerable period of time teachers' actual level of involvement in the teaching tasks and their teaching competences.

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