Teachers' Workload and Class Size as Correlate of Students' Academic Performance in Selected Secondary Schools in Singida Urban

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Abstract
The study sought to establish the relationship between teachers' workload, class size and students' academic performance from five selected secondary schools in Singida Urban. The study was guided by three objectives and three research hypotheses. The study employed correlational cross-sectional design. A sample size of two hundred ninety four respondents was randomly chosen from five secondary schools. A self-administered questionnaire was used to collect information from respondents. The collected data were analysed by Statistical Package for Social Scientists (SPSS) using Karl Pearson's Linear Correlation Coefficient and Multiple Regression Analysis to assess the correlation between teachers' workload and class size and students' academic performance. The study results indicated that, there was no significant relationship between teachers' workload and students' academic performance in surveying secondary schools in Singida Urban at the five percent level of significance. Further, the findings show that class size was positively correlated with students' academic performance in secondary schools in Singida Urban. Also, there is a significant difference between teachers' work load and class size in relation to students of academic performance in selected secondary schools in Singida Urban. Based on the study findings, it is recommended that, emphasis should be directed at improving class size if teachers and education stakeholders in Singida

Urban have to increase students' academic performance. The study concluded that, class size is found to be the best predictor of students' academic performance in the surveyed secondary schools in Singida Urban.

Keywords: Teachers, Workload, Class Size, Academic Performance, Singida Urban

1. Introduction

In recent years, students' performance in the Tanzania Certificate of Secondary Education Examinations (CSEE) has been declining prompting concern in civil society and government about what might be responsible for this and how to address it. The pass rates in these examinations have fallen from 72.5% in 2009 to 50.4% in 2010, and then to an unprecedented 34.5% in 2012 (HakiElimu, 2013). The report has shown the increase crisis in teachers" workload allocation to science teachers and has been identified as consequences to the poor academic results among students in secondary schools in Tanzania (Chirimi, 2016). Poor performance of secondary schools in the country undermines students' chances of joining institutions of higher learning and jeopardizes the opportunity for job placement, and in most cases reduces an individual active participation in national development. Some factors have been attributed to students' academic performance of various levels of education which includes teachers working conditions, availability of teaching and learning facilities such as books and laboratories, school and home factors such as the type of school and the educational climate at home, student background factors. Lyakurwa (2012) study on teachers' causal attributions for underachievement in public secondary schools in Tanzania found that teachers attribute students' failure to factors external to them. Similarly, King (2013), investigated the factors hindering quality education in secondary schools in Mbeya, Tanzania found several factors such as

poor quality of textbooks, teacher, student ratio, poor products of pupils joining secondary schools, absence of reliable teacher's guide, an absence of action based exams, absence of laboratories among others contributed to the failure of form for students.

In the study by Asikhia (2010) found that teachers' methods of teaching influence students' poor performance. Lacour and Tissingto (2011) study on the effects of poverty directly affects academic achievement due to the lack of resources available for students' success. Boga (2014) who studied an empirical analysis on the determinants of poor academic performance found that walking distance to school, the sex of the child, education status of parent/guardian, language spoken at home, late entrance and repetition contribute to students' poor performance.

Despite the fact that the above researches contribute to knowledge, none of them had directly established the relationship between teachers' workload and class size to students' academic performance in secondary schools in Singida Urban. Therefore, this study intends to bridge the gap

1.2 Objectives of the Study
The study was guided by the following objectives;

    i. To determine the relationship between teachers' workload and students' academic performance in secondary schools in Singida Urban.

    ii. To determine the relationship between class size and students' academic performance in secondary schools in Singida Urban.

    iii. To determine the difference between teachers' work load and class size in terms of academic performance in selected secondary schools in Singida Urban.

1.3 Research Hypotheses
This study was guided by the following three hypotheses;

    i. There is no significant relationship between teachers' workload and students' academic performance in secondary schools in Singida Urban.

    ii. There is no significant relationship between class size and students' academic performance in secondary schools in Singida Urban.

    iii. There is no significant difference between teachers' work load and class size in relation to students of academic performance in selected secondary schools in Singida Urban

2. Literature Review
Education plays a significant role in any society. Education is critical for economic growth and poverty alleviation (Word Bank, 1994). Investment in education leads to the accumulation of human capital that is the key to sustained economic growth and increasing income. Education contributes to poverty alleviation by expanding the stock of knowledge, develops attitudes necessary for discipline and creativity in the workplace, increase productivity and equips people to fully participate in the economy and society. It also contributes to strengthening institutions of civil society, national capacity building and good governance (Galabawa, 2000). The secondary school education has recently arisen in the awareness among people in Tanzania and the demand to access this education has grown. The growth in demand has created the need to build more schools and classrooms in order to expand access opportunities among the children of the country. According to PO-RALG (2017), Tanzania has a total number of 4,796 Secondary Schools, among which 3,604 (75.1%) are government owned schools and 1,192 (24.9) are non-government schools. Teachers, generally, are used to working hard for a good cause, but if their good will is exploited, the results can be counterproductive. Teacher's workload includes teaching subjects, administrative duties, supervision of students and other activities. The maximum teaching load is thirty periods per week while minimum is twenty two periods per week, while others may have more than maximum particularly science subjects, however, this policy is not strictly adhered to. Some teachers may be allocated less than maximum teaching periods, whereas others may have more than the maximum. This affects students' academic performance. Several studies prove this assertion, for example study conducted by Osagie and Okafor (2012) on the relationship between human resource management variables and students 'academic performance in secondary schools in Egor local government area, Edo state in Nigeria found that teachers' workload had a negative relationship with students' academic performance. Hence the lower the workload of staff, the better is the students' performance. This finding agrees with those of Naylor and Malcomson

(2001) who reported that teachers had to adjust their teaching methods to enable them cope with the pressure of the workload. The finding from this study also agrees with the work of Nwikina and Nwanekezi (2010) who found out that in the federal capital territory (Abuja), teachers' high workload hindered students' academic performance but when their workload was reduced, students' performance improved.

Many teacher organisations report class sizes exceeding 100 pupils obviously, learning suffers under such conditions. However, it is very unfortunate that the Tanzanian educational policy is silent on the issue of class size only official documents given regularly always insist that a secondary school stream should have 40-45 students. The fact is that most of the secondary schools in Tanzania exceed the required number of students in a classroom. Glossary of Education Reform (2015), to understand how class size can affect teaching, consider the following hypothetical examples. If a teacher has five classes with 20 students in each class, the teacher is responsible for 100 students. If each class has increased to 30 students, the teacher would then be responsible for 150 students a 50 percent increase in the teaching workload. If a teacher with 20 students in each class spends only 15 minutes reading, analyzing, and responding to a written assignment (a short amount of time), the teacher will have to devote 300 minutes to the process for each class or about five hours while five classes given writing assignments would require 25 hours. For a teacher with 150 students, the time required would be 2,250 minutes or nearly a full 40 hour work week. Smaller classes allow teachers to use more personalised instructional techniques and develop and apply new teaching methods.

Class sizes have a contribution to students' academic performance. The relationship between class size and academic performance has been a perplexing one for educators. Few researches have been done on the impact of class size to students' academic performance at the secondary level; the available studies scholars have been finding out the extent to which class size affects students' performance mainly at the university level. Forexample the study conducted by Ruffina, Esther, and Anastecia (2018) on the impact of class size on students' academic performance in Biology in Idemili North Local Government Area of Anambra State found that that large class size had negative effect on students' academic performance in biology. It was also observed that class size has psychological and social effect on students' academic performance. Where the class size cannot be reduced in a given time due to challenges beyond the control of the school authorities, it is recommended that teachers and management of the school should employ rotational students' group formation and study. State and Oyebanji (2020) further findings revealed that class size, school location and school environment had significant joint influences on academic achievement among secondary school students in Oyo South Senatorial District, Oyo State, Nigeria (F (3,476)=7.229; p<0.05).

Bressoux, Kramarz & Prost (2008) study on teacher training, class size and student outcomes found that class size has a significant impact on students' outcomes. Also, class size is sometimes said to impact student achievement (Blatchford, Bassett & Brown, 2011). However, class size varies considerably within each secondary school, regardless of the school size. For example, a required class is 45 students while an advanced level class size is 35 with both classes occurring within the same school. Similarly, Kabazira (2010) study of teachers' utilization on students' academic performance in secondary schools in Kabarole district found that class size had significant relationship with students' academic performance. Further, a study conducted by James (2012) on the relationship between class size, school size and students' achievements in private, independent high schools found a positive correlation with students' achievements and class size. However, some studies had found that there is no positive relationship between class size and students' academic performance, Kennedy and Siefried (1997) found that class size does not affect student achievement. Hanover Research (2012) on the impact of class size on students' performance with accelerated intervention found that class size had statistically insignificant effects on students' cognitive and non-cognitive outcomes.

3. Methodology
3.1 Research Design
The study took correlational cross-sectional survey design aimed at relating each of the two numerical independent variables that are teacher's workload and class size of the numerical dependent variable students' academic performance (Gay & Airasian, 2003; Amin, 2005; Kornfeld, 2010). A cross-sectional survey was used to help the researcher to collect data from the respondents at a specific period of time (Amin, 2005).

3.2 Population

The target population of the study constituted 800 students and teachers from five selected public secondary schools in Singida Urban, out of seventeen public secondary schools. Singida Urban had twenty secondary schools, of which seventeen were public schools. The researcher chooses public schools in that recent years, most of public secondary schools performed poorly in national examination, hence researcher is interested to investigate the root causes of poor performance in public secondary schools in particular Singida Urban. Five public secondary schools in Singida Urban were purposively selected because of its accessibility. The sample of the study was teachers and students. All students and teachers from the targeted population, excluding those who were on sick leave or with any other reasons were accessible. Therefore, accessible population was all students and teachers were present in the field during the data collection process.

3.3 Sample Size

The researcher drew samples from the population. According to Krejcie and Morgan (1970)'s table of sample size(s) determination, suggest that if one has a population of size, N = 800 units, one needs a minimum sample size, s = 260. Therefore, for this study, the researcher used a sample of 260 students. The population of students was divided into five selected schools. The sample of 260 students was allocated proportionally to each of five selected secondary schools using proportional allocation formula (equation 1)

Proportion allocation formula $(ni) = n \times \frac{Ni}{N}$ \hfill (1)

Where;   n = Total sample for the entire study

      N = Total population $(\sum Ni)$

      Ni = Sample from stratum i (i = 1, 2, 3, 4, 5) (Amin, 2005).

However, during the data collection period only 246 respondents were accessed simply because they were present in the field.

3.4 Sampling Techniques

The selection of respondents from each secondary school was done by means of simple random sampling procedure. The researcher obtained sampling frame of each secondary school from deputy head of school. Respondents were randomly selected using the lottery method in the first stratum till required number was obtained. The rationale behind of using simple random sampling procedure was that it allows an equal chance for all students in sampling frame to be selected as respondents of the study (Bakkabulindi, 2012).

3.5 Data Collection Methods

The survey method of data collection was used to gather data from the sample at a period of time (Amin, 2005). The researcher collected data from the respondents using self-administered questionnaires (SAQs). The SAQs enabled the researcher to collect the completed responses quickly and at a reasonable time (Sekaran, 2003).

3.6 Data analysis Techniques

The collected data were analyzed using Statistical Package for Social Sciences (SPSS). All numerical variables such as the aggregate index on teachers' workload and class size such analysis were univariate, that targeting one variable at a time. Inferential data analysis was used; bivariate analysis to test hypothesis that correlate each numerical independent variable (teachers' workload and class size) with numerical dependent variable (students' academic performance) using Karl Pearson's Linear Correlation Coefficient (PLCC). Also multivariate analysis was used to test all three hypotheses at once using multiple linear regressions.

3.7 Validity of Research Instrument

Instrument Validity is the accuracy and meaningfulness of inferences drawn from the research findings. It is the degree to which results obtained from the analysis of the data actually represent the phenomena under study (Mugenda and Mugenda, 2003). The researcher ensured the content validity of the instrument by ensuring that items were in agreement with the conceptual framework. The instrument was given to the experts in education to evaluate the content, clarity, length of items and determine whether it covers all

aspects in study objectives and conceptual framework. The Content Validity Index (CVI) was used to calculate the validity of the questionnaire. Twenty (20) items out of twenty three (23) were judged by both judges to be relevant. Therefore, 20/23 = 0.869, according to Amin (2005) for the instrument to be acceptable as valid, the average index should be greater than 0.5. Thus, the instrument was considered valid in that the computed CVI of 0.869 was more than 0.5 recommended CVI on the survey instrument.

3.8 Reliability of the Instrument

Reliability of the instrument is the ability of the instrument consistently measures whatever it is measuring. The reliability of variables such as teachers' workload, and class size was tested using Chronbach alpha. According to Amin (2005 Cronbach's alpha greater than 0.5 (>0.5) indicate the reliability of the instrument. The researcher established the reliability of the instrument used in computing the alpha coefficient of the items. The Cronbach's alpha coefficient test provided by SPSS was used to test the reliability of the instrument. Table 3.1 gave the Cronbach's alpha values:

Table 3.1: Cronbach's Alpha Values

Variable	Number of Items	Cronbach's Alpha
Students' Academic Performance	10	0.502
Teachers' workload	16	0.550
Class size	12	0.587

Amin (2005) Cronbanch's alpha is a reliability coefficient that reflects how well the items in a set are positively correlated to one another. Amin (2005) argues further that a study is only reliable only if another researcher, using the same procedure and study the same phenomenon, arrives at similar or compatible findings. Amin (2005) argued that if the Cronbach's alpha reliability test result is within 0.5, the instrument is reliable. Thus the internal consistency reliability coefficients for the overall scaled items in instrument employed in this study was found to be is 0.5, which is above the level of 0.5 posited by Amin (2005) as acceptable for the purpose of analysis.

4. Findings

4.1 Results of Hypothesis One (H1)

HI "There is no significant relationship between teachers' workload and students' academic performance in secondary schools in Singida Urban". To test this, the two numerical indices were correlated using Pearson's Linear Correlation index was computed. Table 4.1 gives the pertinent results

Table 4.1: Pearson's Linear Correlation between teachers workload and Students Academic Performance.

		Students Performance	Teachers' workload
Students Performance	Pearson Correlation	1	0.110
	Sig. (2-tailed)		0.060
	N	294	294
Teachers' workload	Pearson Correlation	0.110	1
	Sig. (2-tailed)	0.060	
	N	294	294

 * *Correlation is significant at the 0.05 level (2-tailed).*

According to Table 4.1 the correlation between teacher workload and students' academic performance using Persons linear correlation coefficient gave r = 0.110 (positive) and its Sig = 0.060 which is greater than α = 0.05. This suggests that teachers workload and students' academic performance were not linearly correlated, thus acceptance of the null hypothesis that, there was no significant relationship between teachers' workload and students' academic performance in surveyed secondary schools in Singida Urban at the five percent level of significance.

4.2 Results of Hypothesis Two (H2)

H2 "There is no significant relationship between class size and students' academic performance in secondary schools in Singida Urban." Using responses under class size students academic performance, the two numerical variables were correlated using Pearson's linear correlation coefficient as shown in Table 4.2:

Table 4.2: Pearson's Linear Correlation between Class Size and Students Academic Performance

		Students Performance	Class Size
Students Performance	Pearson Correlation	1	0.337(*)
	Sig. (2-tailed)		0.000
	N	294	294
Class Size	Pearson Correlation	0.337(*)	1
	Sig. (2-tailed)	0.000	
	N	294	294

*** Correlation is significant at the 0.01 level (2-tailed).**

Results in Table 4.2 show that class size and students' academic performance were positively related. Pearson's linear correlation coefficient statistics indicate r = 0.337 whose Sig = 0.000 which is far less than popular α = 0.05 suggesting acceptance of the research hypothesis that class size was positively correlated with students' academic performance in secondary schools in Singida Urban at five levels of significance.

4.3 Results of Hypothesis Three (H3)

H3 "There is no significant difference between teachers' work load and class size in relation to students' academic performance in selected secondary schools in Singida Urban" To confirm this, the two variables were correlated using Pearson's linear correlation as in Table 4.3:

Table 4.3: Pearson's Linear Correlation between workload and class size and students' academic performance

		Students Performance	Workload
Students Performance	Pearson Correlation	1	0.306(**)
	Sig. (2-tailed)		0.000
	N	294	294
Workload	Pearson Correlation	0.306(**)	1
	Sig. (2-tailed)	0.000	
	N	294	294

****. Correlation is significant at the 0.01 level (2-tailed)**

Table 4.3 suggests a significant correlation between teachers' work load and class size and students' academic performance Sig = 0.000 which is far less than α = 0.05. From the Table 4.3 it is inferred that teachers workload and class size and students' academic performance were positively linearly correlated, suggesting acceptance of the research hypothesis that there is a significant difference between teachers' work load and class size in relation to students of academic performance in selected secondary schools in Singida Urban.

Multiple regression analysis
The multiple regression analysis was conducted to find out whether independent variables teachers workload and class size together predict dependent variable students' academic performance. Regression analysis results are given in Table 4.4, Table 4.5 and Table

Table 4.4: Mode Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.338[a]	0.114	0.108	0.5364

Table 4.4 depicts that teacher's workload and class size accounted for 33.8%. The value of the Adjusted R square is 0.108 which is approximately to 10.8% amount of variation explained by the independent variables. This means that 10.8% variation in students' academic performance in the surveyed secondary schools in Singida Urban can be explained by the independent variables. The rest 89.2% amount of variation of a students' academic performance, cannot be predicted by the independent variables in the study.

Table 4.5: Regression Model Summary

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.793	2	5.396	18.753	0. 000[a]
	Residual	83.740	291	0.288		
	Total	94.533	293			

ANOVA results in Table 4.5 gives an F statistic = 18.753 and its Sig value of 0.000 which is far less than α = 0.05. This implies that the independent variables (teachers' work load and class size) had a positive significant contribution to variation in the dependent variable (students' academic performance). Also, suggest that the model was significantly fit at the 1 % significance level.

Table 4.6: Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.182	4.023		5.666	0.000
Teachers' workload	0.30	0.267	0.026	0.456	0.649
Class size	0.262	0.375	0.330	5.793	0.000

Table 4.6 indicates that the computed Sig (p) value for independent teacher workload = 0.649 which was far greater than a popular Sig = 0.05 suggesting that teacher workload was not significantly correlated with students' academic performance at the five percent significance level. Further, Table 4.6 reveals that class size had highest Beta value = 0.330 with significance level of 0.000 which is far less than 0.05, suggesting a significant correlation with dependent variable students' academic performance. Thus, class size was found to the best predictor of students' academic performance in the surveyed secondary schools in Singida Urban.

5. Discussion of Study Findings
H1 "there is no significant relationship between teachers' workload and students' academic performance in secondary schools in Singida Urban". Pearson's Linear Correlation Coefficient (PLCC) and multiple regressions were used to determine the relationship between teachers' workload and students' academic performance. The hypothesis was supported by the findings, which was also in line with findings of earlier studies. For example, Osagie and Okafor (2012) on the relationship between human resource management variables and students 'academic performance in secondary schools in Egor local government area, Edo

state in Nigeria found that teachers' workload had a negative relationship with students' academic performance. Hence the lower the workload of staff, the better is the students' performance. Also, the findings of this study agree with the work of Nwikina and Nwanekezi (2010) who found out that in the federal capital territory (Abuja), teachers' high workload hindered students' academic performance but when their workload was reduced, students' performance improved. Thus, much emphasis should be put on other variables that had a significant correlation with students' academic performance than teachers' workload.

H2 "there is no significant relationship between class size and students' academic performance in secondary schools in Singida Urban". The hypothesis was not supported by the findings. Thus, acceptance of the research hypothesis that class size was positively correlated with students' academic performance in secondary schools in Singida Urban. This was in congruence with past studies such as Babatunde and Olanrewaju (2014) on class size and school climate as correlates of secondary school students' scholastic achievement, Oyo state Nigeria found a significant relationship between class size and scholastic achievement. Also Adeyemi (2008) study of the influence of class size on the quality of output in secondary schools in Ekiti State, Nigeria found that schools having an average class size of 35 and below obtained better results in the senior secondary certificate examinations than schools having more than 35 students per class.

H3 sets out whether teachers' work load and class size differed significantly with students academic performance in selected secondary schools in Singida Urban, which was not supported by the findings. Data analysis and interpretation using PLCC and multiple regression revealed that there was significant correlation between teachers' workload, class size and students of academic performance at the five percent significance level. This implies that teachers' work load and class size had an influence on students' academic performance. This was in agreement with the earlier studies conducted by Bressoux, Kramarz & Prost (2008) study on teacher training, class size and student outcomes found that class size has a significant impact on students' outcomes (Blatchford, Bassett & Brown, 2011). However, class size varies considerably within each secondary school, regardless of the school size. For example, a required class is 45 students while an advanced level class size is 35 with both classes occurring within the same school Similarly, Kabazira (2010) study of teachers' utilization on students' academic performance in secondary schools in Kabarole district found that class size had significant relationship with students' academic performance. Further, a study conducted by James (2012) on the relationship between class size, school size and students' achievements in private, independent high schools found that there was a positive correlation between students' achievements and class size. However, some studies had found that there was no positive relationship between students' academic performance and class size. Kennedy and Siefried (1997) found that class size does not affect student achievement. Hanover Research (2012) on the impact of class size on students' achievement with accelerated intervention found that class size had statistically insignificant effects on students' cognitive and non-cognitive outcomes. Also, Hoxby (2000) study on the effects of class size on students' achievements found that class size does not have a statistically significant effect on student achievement.

6. Conclusion
1. Emphasis should be put on other variables that had a significant correlation with students' academic performance than teachers' workload.
2. The study concludes that if teachers and education stakeholders in Singida Urban have to increase students' academic performance special attention should be directed at improving class size as found to have significant correlation with the students' academic performance.
3. If education stakeholders in surveying secondary schools in Singida Urban have to increase students' academic performance special attention should be directed at improving class size and teacher workload as found to have strong significant correlation with students of academic performance.

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