

INFLUENCE OF WORKLOAD ON MATHEMATICS TEACHERS' MOTIVATION AND SENIOR SECONDARY SCHOOL STUDENTS' MATHEMATICS PERFORMANCE IN MINNA METROPOLIS, NIGER STATE.

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Abstract

The study examined the Influence of Workload on Mathematics Teachers' Motivation and Senior Secondary School Students' Performance in Minna metropolis. The study used ex-facto research design. The population of the study comprises of 7043 (3277 males and 3723 females) senior secondary two (SS 3) students who sat for the Niger State MOCK examination of 2016/2017 academic session and all 43 senior secondary school Mathematics teachers from 23 public secondary schools in Minna metropolis. A multi stage sampling techniques was used. A sample of 596 (321 males and 232 females) students in their intact class and 43 Mathematics teachers was used. One instrument titled "Mathematics Teachers' Workload Questionnaire (MTWLOQ)" with reliability coefficient of 0.75 was used for the study. Mean, standard deviation were used to answer the research question while Independent t-test was used to test the hypothesis. The study revealed that, there was a significant difference in the performance of students in schools where mathematics teachers have normal workload and in schools where Mathematics teachers have excess workload. Similarly, the study revealed that workload has significant influence on the motivation of Mathematics teachers in teaching. In the light of this, it was recommended among others that Mathematics teachers should be assigned realistic workload to keep them motivated to give their best in teaching.

Keywords: Workload, Motivation, Students' performance, Mathematics, Metropolis.

Introduction

Due to the importance of Mathematics to man to in his environment and in the field of science, the teaching of the subject is made compulsory from primary to tertiary level in Nigeria. This is reflected in the National Policy on Education (FRN, 2013) where it states it states that, "teaching Mathematics is compulsory at both primary and secondary schools levels.

Even though Mathematics was made a core subject in the school curricular, students' performance continue to worsen as the years go by (Segun, 2011). This has elicited a lot of concern among researchers and other stake holders in education to establish the cause of these failures. Some researchers have attributed these drawback to the uses of talk and chalk method (Deji, 2010) while other researchers thinks, it is the excess workload of mathematics teachers (Ando 2015, and Idde, 2013). Workload of teachers encompasses a lot of activities such as administrative and non-administrative functions perform by the teachers, teaching large class size, teaching more than one subjects and the number of periods handled by the teacher per week.

The impact of workload on teachers' motivation and students' performance cannot be overemphasized. Work has taken precedence over teachers' personal lives and health, while some teachers are willing to make such sacrifices, majority are striving to attain a healthier balance between the realms of work and life (Raines, 2011). Currently, Mathematics

teachers are working longer hours to meet the demands of the expanding job roles in today's classroom.

The recommended number of periods per subject according to the guidelines on minimum standards as contained in the National Policy on Education (FRN 2004) in (Isoken & Adeyemi, 2014) is a minimum of 18 periods and a maximum of 24 periods per week per teacher. In schools where teachers are teaching below the minimum period will be regarded as normal workload, while in schools where teachers are teaching above the minimum period will be regarded as excess work load.

The amount of work allocated to Mathematics teachers determines his motivation and students' performance (Nagwani, 2016). Work motivation can be defined as the degree of an individual's willingness to exert and maintain an effort towards attaining organizational goals (Akanbi, 2011). It reflects the interactions between workers and their work environments. Excess Mathematics teachers' workload can be associated with poor performance; on the other hand, normal Mathematics teacher's workload might lead to better performance which transcends to functional secondary education programme.

Statement of the problem

Several attempts have been made by other researchers to remedy the situation of under performance of students in both internal and external examination. Some of which have focused on providing adequate instructional material for mathematics class room (Eze, 2013), encouraging peer tutoring (Miller, 2015). Despite all these efforts, poor performance of students in Mathematics continue to persist. It is therefore pertinent to investigate if workload of Mathematics teachers may also contribute to lack of motivation of Mathematics teachers which has led to under performance of students.

Objective of the study

The study aimed to achieve the following objectives

- (i) To determine if any difference exist in students' mean performance in schools where Mathematics teachers have excess workload and in schools where Mathematics teachers have normal workload.
- (ii) To determine if workload could influence Mathematics teachers' Motivation in teaching.

Research questions

- (i) To what extent is the difference in mean performance of students' in schools where Mathematics teachers have excess workload and in schools where Mathematics teachers have normal workload?
- (ii) To what extent does workload influence Mathematics teachers' Motivation in teaching?

Research hypothesis

There is no significant difference in mean performance of students' taught by Mathematics teachers with excess and normal workload.

Methodology

The study used Expo-facto research design. The population of the study comprises of 7043 (3277 males and 3723 females) senior secondary two (SS 3) students who sat for the Niger Sate MOCK examination of 2016/2017 academic session and all 43 senior secondary school Mathematics teachers from 23 public secondary schools in Minna metropolis. A multi stage sampling techniques was used. A sample of 596 (321 males and 232 females) students and

43 Mathematics teachers was used. In addition to the students' MOCK result of 2016/ 2017 academic session, One instrument titled "Mathematics Teachers' Workload Questionnaire (MTWLOQ)" with reliability coefficient of 0.75 was used for the study. Mean, standard deviation were used to answer the research questions while Independent t-test was used to test the hypothesis.

Results

Research question one: To what extent is the difference in mean performance of students' in schools where Mathematics teachers have excess workload and in schools where Mathematics teachers have normal workload?

Table 1: Mean, Standard Deviation of Students taught by Mathematics Teachers with normal and excess workload.

VARIABLE	N	MEAN (\bar{X})	S.D
Normal workload	261	62.65	8.74
Excess workload	292	51.71	7.10

Table 1: above shows the mean and standard deviation of students in school where Mathematics teachers have normal and excess workload. The table has a mean value of 62.65 in school where Mathematics teachers has normal workload and a mean value of 51.71 in school where Mathematics teachers have excess workload. The results indicate that students perform better in school where Mathematics teachers have normal workload than in school where Mathematics teachers have excess workload.

Research question two: To what extent does workload influence Mathematics teachers' Motivation in teaching?

Table 2: Influence of Workload on Mathematics teachers' Motivation in teaching.

S/N	ITEMS	Mean n (\bar{X})	S.D	DECISION
1.	I am motivated teaching more than 18 periods per week.	1.79	.96	DISAGREE
2.	Combining teaching with head of department functions affects my motivation.	2.79	1.03	AGREE
3.	I am satisfied with teaching and keeping school's record.	2.12	.76	AGREE
4.	Supervision and teaching does not discourage me.	2.28	.88	AGREE
5.	I am motivated to teach smaller mathematics class size to large class.	3.37	.98	AGREE
6.	Combining teaching with Liberian functions in the school motivates me	1.98	.911	DISAGREE
7.	I am usually discouraged with students' learning difficulties.	2.53	.96	AGREE
8.	I am motivated teaching Mathematics with other subjects.	1.81	.76	DISAGREE
9.	Am not discourage by large mathematics class size	1.86	.99	DISAGREE
10.	Marking load does not affect my commitment to teaching	2.42	.98	AGREE
11.	Combining teaching with house master's/mistress' function motivates me.	1.79	.71	DISAGREE
12.	I am satisfied with combining teaching with counseling functions in the school.	1.82	.73	DISAGREE
13.	Combining teaching with examination officer's functions	2.65	.97	AGREE

14.	discourage me. I am satisfied combining teaching with labour master'/mistress' functions in the school.	1.74	.85	DISAGREE
GRAND MEAN (X)		2.21		AGREE

Decision Mean (X) = 2

Table 4.5 reveals the mean and standard deviation values of questionnaire items 1-14 on influence of workload on Mathematics teachers' motivation in Minna metropolis. The grand mean score was found to be 2.21. using 2.0 as the average benchmark, it can be inferred that workload influence mathematics teachers' motivation in teaching.

Hypothesis testing

There is no significant difference in mean performance of students' taught by Mathematics teachers with excess and normal workload.

Table 3: Summary of the t-test Analysis of students' taught by Mathematics teachers with normal and excess workload.

Variable	N	Mean (\bar{x})	S.D	DF	t	P	DECISION
Normal workload	261	62.65	8.74	551	.145 ^a	.0074	Reject
Excess workload	292	51.71	7.10				

* Significant at P = 0.0074

The result from table 3 shows t-value = 0.145, df = 551, p = 0074. Thus, the hypothesis was rejected. This means that, there exists significant difference between the mean score of students' taught by Mathematics teachers with excess and students taught by Mathematics teachers with normal workload.

Discussion

From the findings, it was revealed from this study that there was significant difference between the performance of students in schools where Mathematics teachers have normal workload and excess workload. Performance of students was better in schools where Mathematics teachers have normal workload. The difference in students' performance is as result of the fact that Mathematics teachers with excess workload do not usually have enough time to teach the students well enough. Mathematics as a subject needs time and requires total dedication on the part of the teacher. Where any of the above is lacking, expected result will be far from realization. This findings is in agreement with that of (Ando, 2015 & Idde, 2013). They attributed poor performance of students at the basic level to excess workload of Mathematics teacher which hinders them from given proper attention to their students. The findings also support that of Adetunji (2012) who examine Mathematics teacher's workload as a correlates of students' performance in Mathematics and quality assurance in Upper Basic Education.

Furthermore, it was revealed from this study, that workload influence Mathematics teachers' motivation to teaching. The finding also agrees with work of Scott (2009) in Ando (2015) who is of the view that, the excessive amount of time devoted to administrative and non-curricular tasks makes teaching a stressful experience. Consequently, the relationship between the teachers and the learners becomes tense. This undoubtedly affects teachers'

motivation in teaching. Nagwani (2016) also support this view that, the amount of work allocated to Mathematics teachers determines his motivation and students' performance.

Conclusion

Students' performance is influenced by the extent of workload allocated to the Mathematics teacher. The result from the findings revealed that students' performance was better in schools where Mathematics teachers are allocated normal workload. To ensure high productivity therefore, students' performance has to be check in line with the workload of Mathematics teachers. Furthermore, it was observed that workload play a major role in the motivation of Mathematics teachers. Therefore, to ensure Mathematics teachers give their best, they have to be motivated by assigning realistic workload.

Recommendations

Based on the findings of the study, the following recommendations were made:

- (i) Principals should review work processes and load distribution regularly to see if it can help lighten Mathematics' burden.
- (ii) Mathematics teachers' workload should be such that it allows for adequate content coverage thus minimizes teaching towards passing the examination alone.
- (iii) Policies and strategies should be developed to manage teachers' workload for better service delivery and motivation.
- (iv) School management should device a method of obtaining feedback from their workers regarding the work conditions so as to be able to redesign roles to enhance job performance effectively.
- (v) Teaching periods of mathematics teachers should be moderate to avoid over stretched lessons and under-utilized class duration.
- (vi) Government should ensure that learning activities are monitored in schools and provide schools with adequate human and material resources when the needs arise. This will help to keep teachers motivated to always give their best.

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