UTILIZATION OF ALLOCATED TIME AND ACADEMIC ACHIEVEMENT: A SURVEY OF SECONDARY SCHOOL STUDENTS IN KENYA

Dr. Samuel N. Waweru*

Associate Dean

School of Education, Kenyatta University

P.O. Box 43844-00100, Nairobi, Kenya

sawaweru2050@gmail.com

+254-726494652

And

Patrick Ogecha Nyagosia

TSC County Director, Nakuru County, Kenya

491-20100, Nakuru, Kenya

patnyagosia@yahoo.com

+254-722696699

*Corresponding author

ABSTRACT

This paper describes a study that determined the relationship between utilization of allocated time and academic performance of secondary school students in Kenya. The study employed the survey design to obtain the research data. This study was conducted in secondary schools in five Counties in Central Kenya. Stratified sampling was used to select 40 schools, comprising 20 schools from the top performing category and 20 from the bottom performing category. Study participants comprised 381 respondents drawn from the 40 schools. Data was collected using questionnaires and analysed using Pearson correlation coefficient. The study concludes that schools performing well in national examinations were putting more emphasis on time-on-task. The study recommends that school administrators and teachers should put more emphasis on time-on-task and ensure opportunity to learn for all students.

Key words: allocated time, time on task, opportunity to learn, academic achievement

1. Introduction

The significance of education in national development as well as individual development is indisputable. For any country, a highly educated human resource contributes maximally to national development in various spheres. Individuals have used education as a ladder to climb to desired social economic levels. Education is also viewed as a tool for social economic changes (Njuguna, 2011). Nations spend fortunes to enhance the education process and improve academic achievement of learners. In Kenya, the means to judge academic achievement is through examinations. Kyalo and Kuthuka (1992) argue that a certificate must not only certify that a candidate has fulfilled the set requirements but also has attained results that compare favourably with similar cohorts elsewhere. People who perform well in education are known to get better paying jobs and to have a proportionately high productivity. Examinations are used to decide the course one pursues in the institutions of higher learning. The top achievers usually end up being placed in the socially prestigious careers like medicine, engineering and accounting. These jobs are well paying and these people are usually placed highly in production structures (Njuguna, 2011). For this reason, secondary school administrators are pressurized to improve the grades attained by students in national examinations such as the Kenya Certificate of Secondary Education (KCSE).

2. Time on Task and Academic Achievement

Due to the importance with which academic performance is viewed, one question that has preoccupied researchers for decades is why some public schools consistently perform well in examinations while others consistently perform poorly. School effectiveness researchers such as Edmonds (1981), Lezotte, Skaife & Holstead (2002) and Daggett (2005) have established that successful schools have unique characteristics and processes, which help all children learn at high levels (Kirk & Jones, 2004). Among the factors identified as contributing to academic performance is allocated learning time and how it is utilized.

Research on time use at school has made a distinction between allocated and engaged time. Allocated time represents the total number of days (or hours) during which students are supposed to be in school, based on the number of days in the school calendar and the length of the school day (DeStefano, 2012). Engaged time refers to the time when students are involved in an instructional situation. Engaged time is also referred to in the literature as "time-on-task" or as Berliner (1991) explained as "the time students appear to be paying attention to materials or presentations that have instructional goals" (p. 2). Academic (or actual) learning time is the instructional time when classroom learning actually occurs in a subject area, typically guided by the teacher. This is a rather complex concept that relates to other concepts of instructional time such as allocated time, engaged time, contact with curriculum and assessment instruments, and success rate. As Berliner (1991) pointed out, "academic learning time is often and inappropriately used as a synonym for engagement, time-on-task, or some other time-based concept" (p. 3).

The link between learning and time is well captured in learning theories and models such as John Carroll's (1963) Model of School Learning and Lezotte's (2010) Effective Schools Model. The

model of school learning argues that the degree of learning is a function of time spent in learning activities divided by the amount of time needed to learn and master a given task (Carroll, 1963). Similarly, the Effective Schools Model by Lezotte (2010) identifies time-on-task (or opportunity to learn) as one of the characteristics of an effective school. Opportunity to learn and student time on a task simply means that students tend to learn most of the lessons they spend time on. Time-on-task implies that each of the teachers in the school has a clear understanding of what the essential learner objectives are, grade-by-grade and subject-by-subject. Once it is clear what students should be learning, they should be given time to learn it. In a high performing school, teachers allocate a significant amount of classroom time to instruction on the essential skills. Students of all abilities, races, gender, and socioeconomic status have equal opportunities to learn (Lezotte, 2010).

In Kenya, very little research has been done on the link between time utilization and academic performance. One study by Lloyd, Mensch & Clark (2000) in Kenya found out that poor performing schools were characterised by inadequate school facilities, lack of active participation of students in the teaching-learning process, and poor overall school atmosphere in terms of organisation, rules and student-to-student interaction. This study by Lloyd et al. (2000) suggested that inadequate interaction of students in the teaching-learning process (suggesting poor utilization of allocated time) has a significant impact on academic achievement. In this study, the major concern of the study was to determine the relationship between utilization of allocated time and academic performance of secondary school students in Central Kenya.

2.1 Purpose of the Study

The purpose of the study was to determine the relationship between utilization of allocated time and academic performance of secondary school students in Central Kenya.

2.2 Objectives of the Study
The objectives of this study were:
1) To determine whether there is a significant relationship between utilization of allocated time and academic achievement of secondary school students.
2) To determine the strategies being employed by public secondary schools to improve utilization of allocated time.

3. Methodology
3.1 Research Design
The study employed the survey design to obtain the research data. Survey research is designed to provide a snapshot of how things are at a specific time (Denscombe, 1998), and there is no attempt to control conditions or manipulate the variables under study (Kelley, Clark, Brown & Sitzia, 2003). Since the events or conditions have already occurred or exist the researcher merely selects the relevant variable for the analysis of their relationships. The dependent variable of the study was academic achievement of students, which was measured by the KCSE grades and mean scores obtained by schools for the period 2006 – 2010. The independent variable of the study was utilization of allocated time

3.2 Location of the study

This study was conducted in secondary schools in the Central region of Kenya. Central region of Kenya has five Counties: Nyandarua, Kiambu, Kirinyaga, Murang'a, and Nyeri. The total number of secondary schools in Central region is 1,049. Among these schools, 167 are private schools, 3 are special schools, and 879 are regular public schools, of which 6 are National schools situated in Kiambu County. The study was conducted in the 873 Provincial and District Public secondary schools.

3.3 Target Population

The target population of the study included the secondary schools' principals, heads of departments, teachers, and education officers in charge of all 873 Provincial and District Public Secondary Schools in Central region. The total number of teachers in the region is 10,837, among them 5,842 male and 4,995 female teachers.

3.4 Sample Size and Sampling Procedure

The sample size for the study was determined using the formula by Krejcie & Morgan (1970), which is used to calculate a sample size (s), from a given finite population (P) such that the sample will be within plus or minus 0.05 of the population proportion with a 95 per cent level of confidence. This formula is presented below.

$$s \ = \ \frac{X^2 NP(1-P)}{d^2(N-1) + X^2 P(1-P)}$$

Where:

X^2 = table value of Chi-Square for 1 degree of freedom at the desired confidence level (in this case 3.84)

N = the population size, in this case 10,837

P = the population proportion (assumed to be 0.5 since this would provide the maximum sample size)

d – the degree of accuracy expressed as a proportion (0.05)

Computing the desired sample size using this formula gave 371 as the minimum number of respondents that should be selected from a population of 10,837 teachers. Therefore, the researcher distributed 400 questionnaires to the 40 schools (10 questionnaires per school). Using stratified sampling, 20 schools that had been consistently performing well (those ranking top 40 in Central region for the period 2006 – 2010) and 20 that had been recording persistent low grades in KCSE (those ranked bottom 40) were selected for the study. From these schools, 40 principals (20 from top performing schools and 20 from bottom performing schools) and 360 teachers (120 HODs and 240 regular teachers) were selected for the study. Of the targeted 400 respondents, 381 returned completed questionnaires, which was a questionnaire return rate of 95.3%.

3.5 Data Collection and analysis

The main tool for data collection was a questionnaire. The questionnaire comprised of Likert-type items to measure the utilization of allocated time in the schools. Response options were in a 4-point scale (Always [4], Sometimes [3], Rarely [2], Almost Never [1]). Document analysis was conducted to capture KCSE performance data of the sample schools for the period 2006 – 2010 using Central Province KCSE analysis reports.

In order to determine the relationship between the utilization of allocated time and academic achievement (KCSE mean scores), Pearson Product Moment correlation coefficient was used at the 0.05 level of significance.

4. Results and Discussion

4.1 Emphasis placed on time-on-task in schools

To determine how schools emphasised on time-on-task/ opportunity to learn for all students, a 6-item, 4-point Likert scale was used. High scores on the scale (close to 4) denoted that schools mostly emphasised on this correlate while low scores (close to 1) denoted that schools rarely ensured that there were strong emphasis on opportunity to learn. See Table 1 for the mean scores and standard deviations obtained by the respondents on strategies related to time-on-task.

The results show that the mean scores obtained on the individual items of the time-on-task scale ranged from 3.74 to 3.91 for the top performing schools, and 2.64 to 3.05 for bottom performing schools. The items that were ranked highest on this scale included ensuring that teachers attend schools and are punctual to the largest extent possible, and ensuring that instructional time allocated for each subject is adequate to ensure syllabus is covered and learning takes place. On the other hand, the items that were ranked least on the scale were ensuring that there are adequate instructional materials per students both for learning at school and at home and ensuring that the teacher-student ratio is manageable for all subjects e.g. by hiring additional Board of Governors (BoG) teachers where necessary.

Based on the ratings given on the scale, an overall score for the time-on-task scale was computed, with the highest possible score being 24 (high emphasis on the correlate) and the lowest possible score being 6 (low emphasis on the correlate). The overall scores obtained on the opportunity to learn scale (Table 2) ranged from 12 to 24, with most of the respondents obtaining high scores on the time-on-task scale. This implies that most of the respondents rated their schools highly on ensuring opportunity to learn for all students. Previous research by Lezotte (2010) showed that when students get the opportunity to learn most of the lessons they spend time on, their performance improves. Therefore, each of the teachers in the school should have a clear understanding of what the essential learner objectives are, and then give all students time to learn it. In an effective school, teachers allocate a significant amount of classroom time to instruction on the essential skills. Students of all abilities, races, gender, and socioeconomic status have equal opportunities to learn (Lezotte, 2010).

4.2 Relationship between emphasis on time-on-task and academic achievement

The study sought to determine whether there is a significant relationship between the emphasis placed on time-on-task and academic achievement. To accomplish this, a correlation analysis was conducted to determine whether there was a significant correlation between the KCSE mean score deviations for the period 2006 to 2010 and the scores obtained on time-on-task. The results (Table 3) revealed that there was a significant correlation, at $p<0.05$, between the KCSE mean deviations (2006 – 2010) and the overall score on time on task. The correlation coefficient was positive, meaning that high scores on time-on-task correlated with high mean score deviations.

The results imply that schools putting more emphasis on time-on-task recorded more improved KCSE mean scores than those putting less emphasis on the correlate. This confirms that effective schools that perform well in KCSE ensure that students spend most of their school time engaged in focused learning activities. The secondary schools in Central Kenya, where the study was conducted, had been implementing a concept referred to as "Operation Effective 40" (Ministry of Education, 2010). The concept ensures efficient and effective coordination of action-based teaching and learning activities within the 40 minutes lesson in secondary schools. The strategy focused on efficient and effective curriculum implementation within the allocated time, the engaged time and the academic learning rate time. This would enable the syllabus to be completed in time (Nyagosia, 2012). A survey of the impact of this strategy by Nyagosia (2012) revealed that it led to improved academic performance (KCSE) and discipline in secondary schools in Central Province.

5. Conclusion and Recommendations

From the findings of the study, it can be concluded that schools performing well in KCSE were putting more emphasis on time-on-task. The principals in these schools ensured that: teachers attend schools and are punctual to the largest extent possible, instructional time allocated for each subject is adequate for syllabus coverage and learning to take place, there is adequate time in the classroom for learning each task, school attendance and punctuality by students is monitored to ensure that they do not miss classes, teacher-student ratio is manageable for all subjects, and there are adequate instructional materials per student both for learning at school and at home.

Teachers, school administrators and education ministry officials can play a significant role in controlling erosion of instructional time. As pointed out by Levin and Nolan (1996), the amount of time spent on instruction can vary widely from class to class and school to school; much of it as a direct consequence of system, teacher, and administrator policies.

Based on the study findings, it is recommended that secondary school administrators and teachers should put more emphasis on time-on-task and ensure opportunity to learn for all students. School administrators should ensure that little instructional time is eroded through non-instructional activities not directly related to student learning.

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Table 1: Strategies related to opportunity to learn/ time on task

Opportunity to Learn/ Time on Task	Top performing schools		Bottom performing schools	
	Mean	Std. Deviation	Mean	Std. Deviation
Ensuring instructional time allocated for each subject is adequate for syllabus coverage and learning to take place	3.91	.311	3.04	.867
Ensuring that teachers attend schools and are punctual to the largest extent possible	3.91	.337	2.79	.704
Monitoring school attendance and punctuality by students to ensure that they do not miss classes	3.89	.403	3.05	.863
Ensuring that there is adequate time in the classroom for learning each task.	3.86	.360	2.79	.755
Ensuring that there are adequate instructional materials per students both for learning at school and at home	3.80	.451	2.64	.717
Ensuring that teacher-student ratio is manageable for all subjects e.g. by hiring BoG teachers	3.74	.536	2.95	2.150

Table 2: Overall scores on time-on-task

Score	School Rank				Total	
	Top		Bottom			
	f	%	f	%	f	%
12.00	0	0.0	4	2.1	4	1.0
13.00	0	0.0	5	2.6	5	1.3
14.00	0	0.0	13	6.8	13	3.4
15.00	0	0.0	23	12.0	23	6.0
16.00	0	0.0	28	14.7	28	7.3
17.00	1	0.5	39	20.4	40	10.5
18.00	4	2.1	29	15.2	33	8.7
19.00	0	0.0	24	12.6	24	6.3
20.00	5	2.6	16	8.4	21	5.5
21.00	14	7.4	4	2.1	18	4.7
22.00	20	10.5	2	1.0	22	5.7
23.00	36	18.9	2	1.0	38	10.0
24.00	110	57.9	0	0.0	110	28.9
36.00	0	0.0	1	0.5	1	0.3
37.00	0	0.0	1	0.5	1	0.3
Total	**190**	**100.0**	**191**	**100.0**	**381**	**100.0**

Table 3: Correlation coefficient of KCSE deviations across time-on-task

Correlate	Correlation with KCSE mean Deviation (2006-2010)		
	Correlation co-efficient (r)	Sig.	N
Opportunity to learn	0.312	0.000*	381

*Significant at $p < 0.05$