

Research Article

INFLUENCE OF INTERNAL EXAMINATION SETTING PRACTICES ON STUDENTS' ACADEMIC ACHIEVEMENT IN PUBLIC DAY SECONDARY SCHOOLS

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ABSTRACT

Examination setting is an important aspect of assessing and evaluating learners' academic achievement of desired knowledge and competencies. However, little is known on how effectively internal examinations setting practices in public day secondary schools prepare learners for better academic performance in national examination. Therefore, the study aimed at establishing the influence of internal examination setting practices on students' academic achievement in public day secondary schools in Busia County, Kenya. The hypothesis of the study was that internal examination setting practices has no statistically significant influence on students' academic achievement in public day secondary schools in Busia County, Kenya. The study was guided by the Education Production Function Theory and employed an ex-post facto research design. The study population comprised of 7,388 form four students of 2020 and 115 Directors of Studies (DOS) in the 115 public day secondary schools in Busia County. Multistage sampling was used to draw a sample of 661 respondents constituting of 626 form four students of 2020 and 35 Directors of Studies. Data was collected using questionnaires for form four 2020 students and Directors of Studies; and document analysis. Face and content validity of research instruments were ascertained using experts' opinion from the supervisors while reliability was determined using Cronbach's Alpha and reliability of 0.954 and 0.923 for the candidates' questionnaire and Dean of Studies questionnaire respectively were considered reliable. Quantitative data was analysed descriptively using mean and inferentially using Multiple Linear Regression by aid of Stata version 12.1 and results presented in form of tables. The study established that internal examinations set to test on ability of students' to think wide and consistently work hard in studies influence an increase of 0.4377899 and 0.4705922 points in student aggregate points in KCSE after controlling for student and school level variables. The study recommended that public day secondary schools should develop internal examination setting policies that compel learners to think critically, consistently work hard in studies, and curb students' absenteeism.

Keywords: Internal Examination, Setting Practices and Academic Achievement.

INTRODUCTION

Student internal academic motivation has been recorded as vital and noble rudiment to high academic achievement (Owenga, Raburu & Aloka, 2018). Consequently, all resources in a school should be augmented to realize efficient internal management of examinations (Menenu, 2018). Examinations are number of tests used as measuring instruments or devices that a teacher uses to quantify the amount of learning within his or her learners whenever there is need to quantify a particular attribute or variable (Livumbaze, 2017). Nnam and Inah (2015) notes that examination is a yardstick against which students' progress are formally measured. Consistent with these assertions, Bush (2010) posit that examinations have been a major characteristic of educational systems the world over since time immemorial. According to Kingori, Kiumi and Kingori (2018), instructional leaders demonstrate efficient examination management when they focus on improving the effectiveness of internal examinations to increase the achievement of all students. This endeavor to substantiate that: All children can perform, and that the school must internally control the factors that may affect student's performance in exams (Kache, 2018). Performance in secondary schools involves appraisal of prescribed indicators or standards of effectiveness, efficiency, and environmental accountability (Dudaite, 2016). Performance also refers to the metrics regarding how a certain request is handled, or the act of doing something effectively (Owenga, Raburu & Aloka, 2018). All successful, professional learning communities are characterized by a distinct commitment to

effective internal examination management to attain satisfactory results by committing to hard work (Kiemer, Gröschner, Pehmer & Seidel, 2015). A lot of studies have sought to examine the factors that influence the academic performance of students (Chirchir, Manduku & Syallow, 2018). There have been extensive descriptions of specific factors that distinguish effective schools that sustain successful, teaching and learning, and also enhance students' academic performance. However, there are very few studies that attempt to focus on successful internal examination management and enhanced students' academic performance (Chirchir *et. al.*, 2018). Eighteen European countries introduced national tests to make decisions about students' schooling after primary or lower secondary school (Koretz, 2017). Glaser and Silver (2014) underscore the fact that many countries of the world have varied systems of measuring students' achievement performance, attitudes and application of various leaning from school system. In United States, school systems increasingly use student assessments for accountability purposes (Woessmann, 2016). However, by combining accountability reforms with international student achievement data, it has been found out that the expansion of standardised testing with external comparisons has improved student achievement in maths, science, and reading, while internal testing or teacher inspectorates without external comparisons have not (Ramirez, Schofer & Meyer, 2018). In the Netherlands, secondary education traditionally ends with examinations and these examinations are a combination of national and school-based assessments on a number of subjects (Beguin & Ehren, 2011). Beguin and Ehren (2011) report that, in Netherlands, different standard examination setting methods are being used. In Denmark, the final examination is divided into two parts: a school internal examination and a national internal examination and the elements to be tested in each internal examination are specified in

the internal examination syllabus, approved by the Ministry of Education, Culture and Science (MoECS, 2011). The syllabus also specifies the number and length of the tests that make up the national internal examination. Schools are responsible for setting the school internal examination. In their review of the Dutch Internal Examination Systems, Ehren, Leeuw and Scheerens (2012) revealed that a school internal examination consists of two or more tests per subject; oral, practical or written; which are produced by the schools themselves or by test institutes. In Busia County, management of internal examinations takes different dimensions ranging from setting to grading. According to KNEC (2012), teachers set examination scripts, moderate, store, distribute, invigilate, mark and then grade. However, KNEC (2012) asserts that; levels of management of every step of the internal examination process is still wanting since many students tend to perform well in internal examinations compared to KCSE. For example, in the year 2017, Busia County had an aggregate of C+ in County Examinations whereas the same students had an aggregate of D+ in 2017 KCSE. In the same token, in 2014, wastage grades (E, D- and D) in KCSE stood at 29.0%, 2015 at 29.8%, 2016 at 31.2% whereas 2017 stood at 35.9% (KNEC, 2018). There has also been a decrease in proportion of students transiting to universities with quality grades. This calls into question the internal examination management practices; hence the need for this study.

Objective of the Study

The study therefore aimed at establishing the influence of internal examination setting practices on students' academic achievement in public day secondary schools in Busia County, Kenya.

MATERIALS AND METHODS

Research Design

The study adopts an ex-post facto research design. An ex-post facto research design was considered appropriate for two main reasons: one; the public day secondary schools have pre-existing internal examination management practices; and two, the students in public day secondary schools have their Kenya Certificate of Secondary Education mean scores attained in 2020. Therefore, the intention of this study is to establish how pre-existing internal examination management practices influences students' academic achievement in public day secondary schools, events that have already occurred and cannot be manipulated (Kerlinger & Lee, 2000; Cohen, Manion & Morrison, 2000; Marilyn & Jim, 2013). Furthermore, the design allows collection of both quantitative and qualitative data that are subjected to both descriptive and inferential analysis.

Study Population, Sample Size and Sampling Techniques

The study population involved 7,503 comprising of 7,388 form four students of 2020 and 115 Directors of Studies (DOS) in the 115

public day secondary schools in Busia County (Busia Education Office, 2019). The public day secondary schools were considered by the fact that they are the most accessed by a larger public and take the largest portion of students who transits from primary to secondary schools compared to boarding schools. Besides, public day secondary schools continue to post low quality grades in Kenya Certificate of Secondary Education examinations. The sample size of 522 form four candidates was first determined using the Watson (2001) formula and further adjusted upwards by 20 per cent to cater for non-response and incomplete responses (Israel, 1992). This gave a final sample size of 626 form four candidates. The study employed purposive, stratified simple random and proportionate sampling techniques. Purposive sampling was used to select 35 Dean of Studies from public day secondary schools while stratified and simple random sampling techniques were used to draw a sample of 626 form four students of 2020.

Validity and Reliability of Research Instruments

Face and content validity of the research instruments was determined by the supervisors to ascertain clarity, meaningfulness, and relevance of questions to the respondents and that they adequately measured the domain under study (Cohen et al., 2000). The recommended adjustments were incorporated as per the supervisors' advice. To ensure reliability of research instruments, a pilot study was conducted in 5 public day secondary schools in Busia County. A total of 30 form four students of 2020, three from each school and ten Directors of Studies were used in piloting making a total of 40 respondents. The schools and all the respondents were purposively sampled for piloting. Split-half test technique was employed to test the reliability at the chosen level of significance; $\alpha=0.05$. A Cronbach's Alpha reliability of 0.954 and 0.923 for the candidates' questionnaire and Dean of Studies questionnaire respectively were considered reliable (Kathuri & Pals, 1993; Mugenda & Mugenda, 2003).

RESULTS AND DISCUSSIONS

To establish the influence of internal examination setting practices on students' academic achievement, the study computed Multiple Regression Models. In model 1, the study assesses the influence of internal examination setting practices on students' academic achievement in public day secondary schools. In model 2, the study assesses the influence of internal examination setting practices on students' academic achievement in public day secondary schools while controlling for school level variable. In model 3, the study assesses the influence of internal examination setting practices on students' academic achievement in public day secondary schools while controlling for school and students level variables. The results are presented in Table 1.

Table 1: Multiple Linear Regression Coefficients of the Effect of Internal Examination Setting Practices on Student Aggregate Points in KCSE 2020

Variable label	Model 1			Model 2			Model 3					
	UC	RSE	P	B	UC	RSE.	p	B	UC	RSE	P	β
Exams test what I memorize	-0.37	0.22	0.102	-0.08	-0.38	0.20	0.056	-0.08	-0.35	0.21	0.106	-0.07
Tests for future exams	0.32	0.22	0.152	0.07	0.17	0.19	0.378	0.04	0.17	0.19	0.358	0.04
I must think widely	-0.33	0.22	0.127	-0.07	-0.44	0.18	0.016	-0.10	-0.44	0.18	0.015	-0.10
Understanding of all topics	0.17	0.19	0.375	0.04	0.23	0.14	0.107	0.06	0.22	0.15	0.126	0.05
Understanding of all topics	0.10	0.17	0.559	0.02	0.06	0.14	0.682	0.01	0.06	0.13	0.657	0.01
Study entire syllabus	-0.03	0.18	0.868	-0.01	0.04	0.14	0.769	0.01	0.05	0.14	0.712	0.01
Apply learned knowledge	0.26	0.20	0.182	0.06	0.25	0.15	0.110	0.05	0.25	0.15	0.112	0.05

Variable label	Model 1			Model 2			Model 3					
Preparation for national exams	-0.03	0.18	0.880	-0.01	-0.10	0.14	0.472	-0.02	-0.11	0.14	0.453	-0.03
Exam questions relevant to national exams	0.24	0.20	0.233	0.05	0.09	0.15	0.555	0.02	0.08	0.14	0.560	0.02
Exam require I work hard consistently	0.37	0.18	0.040	0.09	0.48	0.14	0.001	0.12	0.47	0.14	0.001	0.12
Sex of student												
Male student				0.26	0.77	0.733	0.01	0.25	0.77	0.743	0.01	
Student's KCPE score				0.17	0.01	0.000	0.59	0.17	0.01	0.000	0.58	
Number of days absent from school				-0.16	0.05	0.001	-0.10	-0.16	0.05	0.001	-0.10	
School mean score 2020								0.72	0.77	0.348	0.03	
Constant	20.93	2.36	<.001	-19.5	3.42	<.001	-21.34	4.27	<.001			
Model Statistics												
N	615			615			615					
F-Statistics	F(10, 604) = 1.71, p=0.0445			F(13, 601) = 29.43, p<.001			F(14, 600) = 27.35; p<.001					
R ²	0.0308			0.3871			0.3881					
Root Mean Squared Error (RMSE)	11.61			9.26			9.26					

Note. UC = Unstandardized Coefficient; RMSE = Standard deviation of the regression model (the closer to zero better the fit); RSE.= Robust Standard Error; Prob = Probability

Source: Stata Output, 2020

The results of the multiple linear regression (MLR) in Table 1 reveals that the constant of regression was significant for both model 1, 2 and 3 at $p < 0.001$, an indication that the model captured all the pertinent variables that explained the variations in student aggregate points in Kenya Certificate of Secondary Education (KCSE) 2020 in public day secondary schools in Busia County, Kenya. The F-statistics ($F(10, 604) = 1.71, p = 0.0445$; $F(13, 601) = 29.43, p < .001$; and $F(14, 600) = 27.35, p < .001$) for model 1, 2, and 3 respectively indicate that the R^2 for the three models were significantly different from zero at $p = 0.05$. These imply that all the coefficients in the model were significantly different from zero and were important in explaining the variation in student aggregate points in Kenya Certificate of Secondary Education (KCSE) 2020 in public day secondary schools in Busia County, Kenya. In model 1 in Table 1, the study estimate the effect of internal examination setting practices on student aggregate points in KCSE 2020. The model is significant at 10% with r-squared at 0.0308 implying that the model was able to account for 3.08% of the variation in student aggregate points in KCSE 2020. Out of the 10 variables of internal examination setting practices only the variable 'internal examination require I work hard consistently' is statistically significant at $p = 0.05$. The results indicate that a one unit increase on a scale of 0-10 where 0 = no consistent hard work at all in internal exams and 10 = maximum consistent hard work in internal exams is associated with a 0.3658212 increase in a student's aggregate points in KCSE. In other words, the more the internal exams are set to test on hard work, the better the aggregate points of a student in KCSE. In mode 2, the study models the effect of internal examination setting practices on student aggregate points in KCSE controlling for student-level variables. The model is significant at $p < 0.001$ with an improved r-square value of 0.3871 from 0.0308 in model 1. This implies that the variables in the second model improved significantly the model and were able to explain 38.71% of the variation in student aggregate points in KCSE 2020. The number of significant variables also improved. Out of the 10 variables of internal examination setting practices, two variables; I must think widely and internal exam require I work hard consistently, were statistically significant at $p = 0.05$. In addition, the student level variables; Student's KCPE score and number of days absent from school were statistically significant at $p = 0.05$. The results in model 2 in Table 1 indicate that a one unit increase on a scale of 0-10 is associated with a 0.4354221 increase in a student's aggregate points in the KCSE. In other words, the more the internal exams require wide thinking in order to do well the higher a student's aggregate points in the KCSE. Further, the results in

model 2 in Table 1 indicate that for a one unit increase on a scale of 0-10 is associated with a 0.4779358 increase in a student's aggregate points in the KCSE. In other words, the more the internal exams require hard work, the better the students' aggregate point in KCSE. In addition, a one unit increase in the student's KCPE score is associated with a 0.1681899 increase in that student's aggregate points in KCSE. The results suggest that better achievement scores in KCPE predict better aggregate points in KCSE. For number of days a student is absent from school, the results of model 2 in Table 1 indicate that an extra day of absence from school is associated with a decrease of -0.1631228 in the student's aggregate points in KCSE. The results suggest that the more a student becomes absent from school the lower their KCSE aggregate points. In the Regression Model 3, the study models the effect of internal examination setting practices on student aggregate score controlling for student and school-level variables. Just like in the second model, the model is significant at $p < .001$ with r-squared having improved marginally to 0.3881 from 0.3871. This implies that the variables in the final model were able to explain 38.81% of the variation in student aggregate points in KCSE 2020. Out of the 10 variables of internal examination setting practices, two variables; internal examinations require that I must think widely, and internal examinations require I work hard consistently were still significant at $p = 0.05$. Similarly, the students level variables; student's KCPE score and number of days a student was absent from school were still significant at $p = 0.05$. The results of model 3 in Table 1 indicate that a one unit increase on a scale of 0-10 is associated with an increase of 0.4377899 in a student's aggregate points in the KCSE. The results suggest that the more the internal exams require wide thinking, the higher the aggregate points in the KCSE. Also, the results of model 3 in Table 1 indicate that a one unit increase on a scale of 0-10 was associated with an increase of 0.4705922 in a student's aggregate points in the KCSE. In other words, the more the internal examinations and tests require a student to hard work, the better their aggregate points in the KCSE. Furthermore, the results of Model 3 in Table 4.5 indicate that a one unit increase in the student's KCPE score is associated with a 0.165501 increase in that student's aggregate points in the KCSE. In other words, better achievement scores in KCPE predict better aggregate points in KCSE for a public day secondary school student. The results therefore suggest that students enrolled in public day secondary schools with high scores in KCPE are predicted to have higher aggregate points in KCSE compared to those enrolled with lower scores in KCPE. For s24, the results of model 3 in Table 1

indicate that an extra day of absence from school by a student in a public day secondary school is associated with a -0.1565627 decrease in that student's aggregate points in the KCSE. In other words, a student's absenteeism from school has a negative effect on a student's KCSE aggregate points. This suggests that students who attend school regularly are predicted to have higher aggregate points in KCSE than those who do not attend school regularly. Consequently, the study reject the null hypothesis that internal examination setting practices have no effect on student's aggregate points in KCSE. The results suggest that internal examination setting practices are important in explaining variations in student's aggregate points in KCSE in public day secondary schools in Busia County Kenya. The findings indicate that those public day secondary schools that have internal examination setting practices that encourages students to think widely in order to do well in internal exams and requires students to work hard consistently in order to pass internal exams have their students KCSE points predicted to be 0.4377899 and 0.4705922 points higher than those who do not focus on testing wide thinking and consistent hard work. The findings explain variations in students' aggregate points in KCSE in public day secondary schools. In addition, students' with better achievement scores in KCPE are predict to score 0.165501 points higher in KCSE than those with lower entry KCPE scores. This implies that students KCPE entry behavior is significant in explaining differentials in students' aggregate points in KCSE in public day secondary schools. Besides, the findings of the study indicate that student' absenteeism affect students' aggregate points in KCSE. The findings show that students who miss school up to eight days are predicted to score -0.1565627 points less in their aggregate points in KCSE than those who attend school regularly. Aslam *et al.*, (2012) concurs that semester system is perceived to be most effective way of effectual learning. These sentiments are also shared by Agarwal *et al.*, 2017; Roediger and Pyc, 2012 who observe that one of the most consistent findings in cognitive psychology is that testing leads to increased retention more than studying alone which leads to better scores in future exams. It is from this perspective that Omari (2012) posits that examination determines how much and to what extent investments in the education sector are yielding desired outcomes. Therefore, selection and placement decisions made on the basis of examination outcome should be based on a water tight examination system where the results reflect the true picture of the abilities of learners. According to Adeyoju and Arijesuyo (2012), the quality of an examination is determined in terms of how appropriate its outputs are. Therefore, a credible examination must possess validity and reliability as key elements. In addition, Akaranga and Ongong (2013) content that the primary goal of assessment via exam is to accurately measure student achievement of desired knowledge and competencies, which are generally articulated through learning objectives. For students, locally developed exams convey educational concepts and topics deemed important by the school, which allows them to interact with those concepts and receive feedback on the extent to which they have mastered the material. It is from this perspective that Ojonemi, Enejor, Enejorh and Olatunmibi (2013) posit that internal examinations provides the school administration with valuable insight on how students are thinking about concepts. They content that this may assist school administration in identifying student misconceptions, and often serve as the basis for assigning course grades. Furthermore, they agree with the fact that exams allow school to evaluate student achievement of learning objectives to make informed decisions regarding the future use and revision of instructional modalities for future written exams such as KCSE. Rudolph *et al.*, (2019) resonates with the fact quality items (questions) are necessary for an exam to have reliability and to draw valid conclusions from the resulting scores. They argue that broadly defined and reliable internal exams lead to consistent and

reproducible results in national exams. Further, Ojonemi, Enejor, Enejorh and Olatunmibi (2013) agree to the fact that internal exam efficiency is one of the most important principles when administering exams in that it assess the learning objectives and overarching concepts of the lesson, and test in a manner that is in accordance with how students will ultimately use the information.

CONCLUSION

The results of the multiple regression analysis after controlling for student and school level variables in the model indicate that internal examination setting practices was significantly associated with student aggregate points in KCSE at the 95% level. It was concluded that positive variations in student aggregate points in KCSE were in with internal examination setting practices. The results also show that student level variables; KCPE entry score and school attendance predicted an increase of 0.165501 and a decrease of -0.1565627 points on student aggregate points in KCSE respectively. It was concluded that KCPE entry score and school attendance are positively and negatively correlated with student aggregate points in KCSE respectively.

RECOMMENDATION

The study recommended that public day secondary schools should develop internal examination setting policies that compel learners to think critically, consistently work hard in studies, and curb students' absenteeism.

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