**Perceived Relationship between Teachers' Acquisition of Higher Degrees and Students'
Academic Performance in Kakamega Central District, Kenya.**

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Abstract

There has been increased demand for university education by secondary school teachers in the
recent past in Kenya. The study set out to determine the perceived effects of teachers' acquisition of
higher degrees on teaching and learning process. Specifically it investigated the perceived effect of
teacher's acquisition of higher degrees on students' academic performance. The study was carried
out in public secondary schools in Kakamega Central district of Kenya. It used descriptive survey
design. Target population was 510 respondents who included serving secondary school teachers,
heads of departments and principals. Stratified, purposive, random and systematic sampling
techniques were used to obtain the sample for the study. A sample size of 168 respondents was
used. The instruments that were employed were questionnaires and interview schedules. Descriptive
and inferential statistics were used to analyze the data collected. The results were presented in form
of frequency tables, pie charts and bar graphs. The study findings as opined by respondents revealed
that there was a relationship between a teacher's higher academic qualification and student's
academic performance. These findings could be crucial to the TSC and other policy makers in the
education sector in designing proper policies that will support continuing education for teachers.
The study concluded that acquisition of higher degrees by secondary school teachers had an effect
on students' academic performance in secondary schools. It was therefore recommended that
professional development of serving teachers should be enhanced so that teacher effectiveness is
maintained. Further studies are necessary to investigate the effect of higher degrees on teaching and
learning by using observation and achievement tests.

Key Words: Higher Degree, Academic Performance, Teacher effectiveness.

1.1 Introduction
The fifth International Conference on Adult Education (CONFINTEA) held in Hamburg, Germany 1997, challenged universities to transform themselves into institutions of continuing education so as to provide opportunities for further education (UNESCO, 1998). Sessional Paper No. 1 of 2005 on policy framework for Education, Training and Research calls for the restructuring of secondary school teacher training programme to require that teacher trainees attain basic qualifications in their respective subject areas and subsequently undertake post graduate training in pedagogy.

In a stakeholder's consultative workshop on co-ordination of primary teacher training and university education organized by the Commission for Higher Education (CHE) in 2009, considers continuing education as an integral part of teacher education. The provision of many modules has also enabled teachers to study at their convenience either as full time, school based or part time in the evenings and weekends. It is upon this background that there has been an increased opportunity for teachers to further their education in universities locally and overseas. This new development raises some important questions and dilemma on the quality of teaching and learning in schools.

1.2 Statement of the Problem: According to Rice (2003) there is a negative relationship between teacher completion of advanced degrees and student achievement at elementary stage. Secondary school teachers are getting higher degrees yet no comparison has been made to establish whether there is any relationship between teachers' higher degrees and students' performance. This study therefore intended to investigate the perceived relationship between teachers' higher degrees and students' performance in secondary schools.

1.3 Purpose and Objective of the Study: This study intended to investigate the perceived effects of teachers' higher degrees on teaching and learning in public secondary schools with a focus on Kakamega Central district. The specific objective of the study was to establish the perceived relationship between a teacher's higher degree and students' academic performance.

1.4 Significance of the Study: This study could provide data that the Ministry of Education and the Teachers' Service Commission could use to establish proper guidelines and policies on continuing teacher education, study leave, teacher deployment, and scheme of service as higher degrees especially masters degrees could be recognized. It could also determine the impact of continuing teacher education on the quality of student performance in secondary schools. The research findings could also form a basis of information for other researchers who may be interested in carrying out further research in this area of study.

1.5 Scope of the Study: This study covered serving teachers in public secondary schools in Kakamega Central District of Kakamega County who had acquired or were currently pursuing higher education and how their acquisition of higher degrees affected the teaching and learning in their secondary schools. Serving secondary school teachers who had not accessed higher degrees were also included to provide a comparison. The Heads of Department and Principals were included to provide a perceived comparative evaluation of effectiveness of the three categories of teachers. The focus of secondary school teacher enrollment in university education was on undergraduate and post graduate programs. The quality of teaching and learning focused mainly on teacher

preparation, assessment of students, marking students work and revision, teacher learner interaction among others.

2. Materials and Methods

2.1 Research Design: The study used descriptive survey design. Descriptive survey design was adopted since it helped to establish the pertinent facts that the research intended to establish without necessarily manipulating the variables of the study (Koul, 1998).

2.2 Study Location: The study was carried out in Kakamega Central district in Kakamega county of Kenya. Kakamega County is one of the forty seven counties in Kenya. The study focused on public secondary schools in Kakamega Central district. The district was chosen for study since it provided a broad spectrum of both urban and rural schools hence the researcher could get views that would cut across both spectra.

2.3 Population: The target population was all the public secondary schools in Kakamega Central district including their teachers and principals. There were 300 teachers, 168 heads of department, 42 principals and 42 public secondary schools (Source: District Education Office).

2.4 Sampling Procedures: The researcher used both probability and non probability sampling techniques. Probability sampling was used when picking on the sample of teachers and schools. Stratified sampling was used to place teachers into three categories as per the divisions found in Kakamega Central district. This ensured that representative sample of teachers was obtained across the district. According to Mugenda and Mugenda (1999), at least 30% of the cases per group are required for research. The researcher used a sample size consisting of 105 teachers with a proportionate distribution of teachers from every division as shown in Table 1. In every school the researcher used a sample of 5 teachers.

Table 1: Sampling of Teachers

Division	No. of schools	No. of teachers
Navakholo	7	35
Lurambi	9	45
Municipality	5	25
Total	**21**	**105**

Stratified sampling was used to place the teachers into categories based on the following characteristics that is teachers pursuing higher degrees, teachers already attained higher degrees and teachers with no additional higher degree. Once the categories were established, the researcher developed a source list from which the teachers were randomly picked using systematic sampling. A sampling interval (K) was established by dividing the population and the sample. A sampling starting point was established by folding N papers as per the population in every category (Mugenda and Mugenda, 2003; Kothari, 2004). Schools selected for the study were derived from the list that was obtained at the district education office showing the number of schools in the district. Kakamega Central district has 42 secondary public schools. The researcher carried out a study in 50% of the schools in the district.50 % of the schools in each division were used as part of the sample. Systematic

random sampling was thus employed to determine which schools the researcher was to study in the division as a source list was available. The sampling interval (K) was determined by dividing the population and the sample required.

Within the selected schools, purposive sampling was used on the heads of department. Most schools have four main departments namely: Applied Sciences, Sciences and Mathematics, Humanities and Languages. This gives an average of four heads of department per school. Two heads of department in every school were purposively selected giving a total of 42 heads of department to form the sample. Purposive sampling was used on the heads of department as the researcher was interested in a department that currently had at least a teacher away on studies or had teacher/teachers who had already acquired higher education. The principals were selected using systematic random sampling as they were based on the schools selected for the sample.

A sample size of 168 respondents was used as shown in Table 2.

Table 2: Sample Size

Category of Respondents	Population (N)	Percentage (%)	Sample(n)	Sampling Technique
Teachers	300	35	105	Stratified and systematic sampling
Head of department	168	25	42	Purposive sampling
Principals	42	50	21	Systematic sampling

Students were not used in this study as the researcher was of the opinion that they may give biased information on the teachers depending on the relationship and it is not in the capacity of the student to determine which teacher is more effective in teaching. In a study carried out by Peterson, Wahlquist and Bone (2000), they showed that younger students were more concerned with the teacher-student relationship while older students in higher institutions of learning placed more weight on student learning. Students at secondary school level are not so qualified as to rate the teachers on curriculum objectives, class management, content knowledge or other areas associated with effective teaching (Worrell & Kuterbach, 2001).

2.5 Instruments for Data Collection: The study used both primary and secondary sources of data. Thus the following instruments were used to collect data: Questionnaires and interview schedules. The questionnaire is an ideal instrument to gather descriptive information from a large sample in a fairly short time (Kothari, 2004). It can also be answered at the convenience of the respondent and picked at a later time. The self designed questionnaires were both structured and unstructured. The participants used for this study responded to questions that employed a five-point likert-scale (summated). This scale allowed the respondents to rate their perception on the relationship between teachers higher degrees and students academic performance. Two sets of questionnaires were developed for the teachers and heads of department. Interview schedule was an appropriate instrument as the numbers of Principals to be accessed were few considering that the number of secondary schools that constituted the sample was only 21. Principals were also to provide a perceptive appraisal of the three categories of teachers on their instructional competencies. They were also to give a perspective on whether higher academic qualifications influence students' performance.

2.6 Validity and Reliability: These are tests of measurement that are used to evaluate the effectiveness of a measurement instrument (Kothari, 2004). Mugenda and Mugenda (1999) refer to validity as the extent to which the instrument measure what it is supposed to measure or designed to measure. The instruments for this study i.e. the questionnaire and the interview schedule were validated through application of content validity determined by an expert judgment. It was expected that content validity of the items in the questionnaire and the interview schedule was ensured following the researchers consultation with peers and supervisors from the department of Curriculum and Instructional Technology, Masinde Muliro University of Science and Technology. The second way in which the instruments were validated was through pretesting and the responses from the respondents were used to improve the items. It was hoped that draft instruments for data collection were thus validated.

Test- retest method of estimating reliability was used to determine the reliability. A quantitative analysis of the inquiry was performed using the SPSS 11.5 computer program to statistically test the reliability of the research instrument. In the analysis, the sum variables were used, because the reliability is very high compared to a single variable (Bryman & Cramer, 2001). A correlation co-efficient was worked out using Spearman's Product Moment Correlation. A correlation co-efficient of 0.91 showed a strong reliability of the research instrument. There was a 70% return rate on the questionnaires and 66% interview rate on the principals' interview schedules as most of the principals did not honor their appointments.

2.7 Data Analysis: Data was analyzed through descriptive and inferential statistics. The data was subjected to standardized statistical analysis techniques using statistical package for social sciences (SPSS). Data was organized into frequency tables from which the means, percentages were calculated. For better interpretations and pictorial view it was further represented as bar graphs. Chi-square as a statistical technique was used to compare the difference between categorical frequencies. Chi-square test was used to analyze data to show if there was any significant perceived relationship between teachers' higher academic qualification and students' performance. One way ANOVA technique was used to show if there is any statistical difference in teacher competence. Data was organized into frequency tables from which means were calculated.

3.1 Results and Discussion

Results from table 3 show calculated χ^2 is 31.866. The degree of freedom is 12 and the exact tail probability is 0.001 which is less than the critical value 0.05. This indicates that there is a relationship between teachers' higher academic qualifications and students' academic performance.

Table 3: Perception of Teacher's Higher Degrees on Students' Academic Performance

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.866(a)	12	.001
Likelihood Ratio	32.280	12	.001
Linear-by-Linear Association	2.468	1	.116
N of Valid Cases	394		

These findings are in agreement with other studies done before. Cohen & Hill (1999) found that higher levels of student achievement are associated with mathematics teachers' opportunities to participate in sustained professional development grounded in content-specific pedagogy linked to the new curriculum they are learning to teach. Other studies have found that students achieve at higher levels and are less likely to drop out when they are taught by teachers with certification in their teaching field, by those with master's degrees, and by those enrolled in graduate studies (Council for School Performance, 1997; Sanders, Skonie-Hardin, & Phelps, 1994).

In a research conducted by Goldhaber and Brewer (1997), it was found that those mathematics students who received instruction from a teacher with advanced or masters degrees in mathematics, achieved higher scores as compared to those students whose teachers had no advanced degree. Ololube (1997) asserts that teachers with higher academic qualifications are more effective than teachers with lower academic qualifications. Clotfelter, Ladd and Vignor (2007) showed that high school teachers who completed a master's degree were more effective at increasing student achievement than those without advanced degrees. The findings of this study are contradicted by other studies. Ferguson (1991), found that master's degree had no predictive power related to student achievement after the seventh grade. According to Rice (2003), other four studies have shown a negative relationship between teacher completion of advanced degrees and student achievement.

Table 4: Average Means showing Teacher Evaluation by (H.O.Ds) and Principals

Subject rating scale	Teacher A	Teacher B	Teacher C
Content knowledge of subject	4.26	4.12	4.29
Level of preparation before class	3.86	3.97	4.09
Presentation clarity	3.89	3.98	4.29
Class attendance	3.81	4	4.23
Ability to stimulate and motivate the students	3.89	4.06	4.18
Adequacy of subject assessment	3.73	3.74	3.89
Syllabus coverage	3.56	3.75	3.92
Students performance in the subject	3.2	3.5	3.83
Adequacy of consultation time	2.92	3.59	3.71
Class control	3.89	4.15	4.08
Relevant learning strategies	3.97	3.91	3.94
Use of relevant instructional materials	3.64	3.82	3.91
Total mean score	**44.62**	**46.59**	**48.36**

Key: Teacher A: - Teachers currently pursuing higher education
         Teacher B: - Teachers who have not enrolled for higher education
         Teacher C: - Teachers who have completed higher education

Findings in Table 4 as opined by the respondents showed that teacher C is more competent followed by teacher B and lastly teacher A. However it should be noted that teacher C is leading in the scoring of means in all the variables depicted when an average evaluation of the heads of

departments and principals is done. Teacher A has the lowest mean scores in every variable depicted in the table.
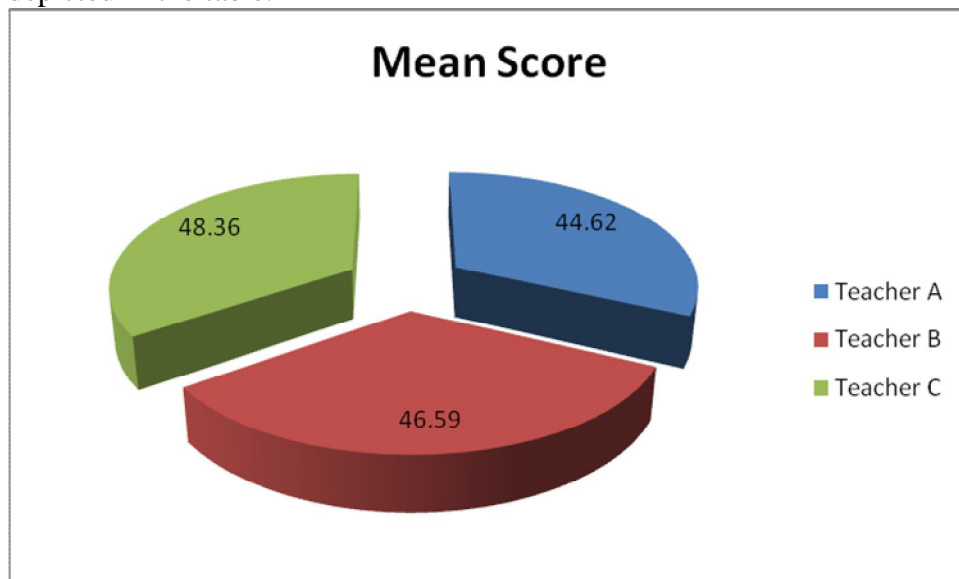

Figure 1: Total Mean of Principal and H.O.Ds Evaluation of Teachers

Key: X-axis-means on teacher competency
Y-axis-categories of teachers

From Figure 1 it is evident that teacher C is more effective followed by teacher B and lastly teacher A. Thus based on these perceptions a teacher's higher academic qualification will affect students' performance as teacher C had a higher mean score compared to the rest of the teachers.

It was evident that as much as teacher A is seeking higher education their performance was lower than teacher B due to the following reasons cited by the heads of departments and principals: Teachers have divided attention and are too busy doing their personal work. Learners are neglected and there is limited time for consultation. There is a high rate of teacher absenteeism and high teacher turnover. There is poor preparation of lessons and at times finding a suitable replacement is hard. According to Bruno et al. (2007), students in a classroom eventually loose the desire to learn when the regular teacher is frequently absent and the delivery of instruction is by an away substitute teacher. This finding is in tandem with Finlayson (2009) who states that increased teacher absenteeism significantly impacts on student performance in a negative way. Miller et al. (2009) showed that using a substitute teacher often leads to re-teaching material, rebuilding relationship with students before actual learning can take place.

Table 5: Analysis of Variance table for Teacher Competency

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.862	2	0.931	1.21	0.041
Within Groups	20.774	27	0.769		
Total	**22.636**	**29**			

An analysis of their means using one way ANOVA technique in table 5 shows that there is a signifigant statistical difference in their opinions as the F-ratio is 1.21 and the F- probability is 0.041.

3.2 Conclusion and Recommendations

The study established that there is a perceived relationship between a teacher's higher academic qualification and student's academic performance. The chi-square test showed that there was a significant relationship between teacher's higher academic qualification and student's academic performance. An evaluation of the teacher competencies showed teacher C leading followed by teacher B and C respectively. It was clear that as much as teacher A was acquiring higher education, other factors relating to the acquisition of higher education were interfering with the teacher classroom performance. There was also a significant statistical difference in the respondents' opinions on teacher competencies.

From the findings of the study, it is recommended that the teachers service commission should encourage teachers' professional development by creating a scheme of service that recognizes increased academic qualifications since acquisition of higher education by practicing secondary teachers improves the quality of teaching and learning,

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