

TEACHERS' PROFESSIONAL KNOWLEDGE APPLICATION PRACTICES AND STUDENTS' ACADEMIC PERFORMANCE IN PUBLIC SECONDARY SCHOOLS IN KAKAMEGA NORTH SUB-COUNTY, KENYA

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Abstract

The purpose of this study was to assess the effect of teachers' professional knowledge application practices on students' academic performance in public secondary schools in Kakamega North sub-county, Kenya. The study was guided by the Goal setting theory. A descriptive survey research design was utilized. The target population was 772 persons comprising of 674 teachers, 49 principals, and 49 deputy principals from Kakamega North's public secondary schools. A sample size of 232 was obtained using Krejcie and Morgan's Table for determining sample sizes. The researcher then applied proportionate sampling approach to determine the number of respondents in each group. Thus, 202 teachers, 15 principals, and 15 deputy principals were used as respondents. Questionnaires, interview schedules, and document analysis were utilized in data collection. The reliability coefficient of the instruments was determined using the test-retest technique with Cronbach's alpha statistic being used to calculate its reliability. A reliability value of 0.842 was established which was considered sufficient to get consistent outcomes. The validity of the instruments was determined by the experts in the area of specialization. Data was analyzed using descriptive statistics and Chi-Square analysis. The qualitative data was processed and presented using quotations according to the study's topics and sub themes. The study established that there is no statistically significant relationship between teacher professional knowledge application appraisal practices and students' academic performance in public secondary schools in Kakamega North Sub-county, Kenya. The study recommends that a policy is needed to strengthen these variables in order to realize better academic results from students in public secondary schools. The study is hoped to benefit the education stake holders, policy makers and community members in improving the students' academic performance.

Keywords: Professional knowledge application appraisal practices, Students' academic performance; Teacher appraisal practices and professional knowledge

INTRODUCTION

The objective of the school is to transmit knowledge and information to students; and for this purpose, the teachers with latest knowledge are main component who can complete this objective of the school. They are expected to teach all students according to today's standards, and hence needs to understand subject matter deeply and flexibly so they can help students create useful cognitive maps, relate one idea to another, and address misconceptions. Teachers need to see how ideas connect across fields and to everyday life. This is only possible when quality content is available for students; and teachers teach it effectively so that students can learn and apply it in their lives wherever they need.

According to Theall (2012), teachers make the value of their teaching through application of content material in practical situations by giving examples from the real world. Students feel more motivated when they find content practical and relevant to their lives. Teachers can relate content with practical life by giving theoretical examples, using technology, organizing field trips, demonstration, etc. Teachers, who are expert in their subject matter, can better implement their planned lesson and keep busy students in classroom proficiently. Jadama (2014) argues that the in-depth knowledge of subject matter which teachers are going to teach make them able to use various methodologies suited to deliver it. The full understanding of content makes them confident about selection of teaching strategies and skills, which are best for students' understanding. Teacher's expertise and latest knowledge of content has a great positive effect on the process of teaching learning process. It makes students able to learn, practice and apply the knowledge and skills in their daily lives.

Harris et al, (2007) elaborate that, "Knowledge of subject matter is a prerequisite for effective classroom instruction. Teachers' understanding of subject facts, concepts, principles, methodology, and important generalizations determine his/her pedagogical thinking and decision making." Teacher can make his/her content more elaborate by asking the students' inquiry based questions, explanations and activities of their own. According to Arlington (2012), researchers found out from various researches that teachers' subject matter knowledge has great effect on achievement of students. It makes teachers confident and more loved by students. The less expert teacher cannot satisfy the needs of students learning which make them in effective in their profession.

Competent teachers are the most critical element in improving student achievement and closing the achievement gap. The important difference between the most and least effective classrooms is the teacher. The single most important influence on student learning is the quality of teaching. If teachers are not given the opportunities to improve practices in the classroom, it is the student's achievement that may be harmed as a result. Pamela (2005), states that research on teacher quality supports the fact that effective teachers not only make students feel good about school and learning, but also that their work actually results in increased student achievement. Studies have shown that a whole range of personal and professional qualities are associated with higher levels of student achievement. For example, we know that verbal ability, content knowledge, pedagogical knowledge, certification status, ability to use a range of teaching strategies skillfully, and enthusiasm for the subject characterize more successful teachers.

Simiyu, Amimo and Akuom (2015) in a study on the impact of teachers professional knowledge application on pupils academic performance in Shinyalu sub-county Kakamega County, established that teachers with long experience enhance and improve performance; and that long serving teachers are hands on in preparation of their lessons and keen on learner digression from performance. Similarly Kimani (2017) using questionnaires to collect data with a sample size of 75 primary schools in Laikipia County found out that teacher professional knowledge application significantly and positively affected the academic performance of students within the period of time under study (2005-2015). Response rate was 84% while data analysis was done by multiple regression rates. The study concluded that long teaching experience in actual classroom teaching produces better learner performance results than short teaching experience. In a study by (Kalu, 2017) on the influence of teachers professional knowledge application appraisal on pupils performance in Narok county, it was found out that Appraisal of teachers on adequacy of planning and preparation by head teachers and subject teachers before attending classes assisted in improving pupils' academic performance to a large extent .

Methodology

The study utilized a descriptive survey research design. According to Kothari (2011), descriptive survey research is a procedure of assembling data to analyze a hypothesis or respond to problems about the existing state of a topic. If the objectives of the study require both quantitative and qualitative data, the design is considered a suitable tool for information collection (Polland, 2005). The study was carried out in Kakamega North Sub-county, Kenya. The main socio-economic activities in Kakamega North Sub-county include mixed agriculture, trade, tourism, transport and communications. The reason of selecting the study location of Kakamega North Sub-county was based on their performance in national examinations.

Mugenda and Mugenda (2003) outlines a population as a set of themes or persons in the universe, specifically for investigation that entails a complete cluster of people, objects and entities that have recognizable characters and distinctiveness. Thus, the study targeted all 674 teachers, 49 Deputy Principals and 49 Principals public secondary schools in Kakamega North Sub-county. Hence, the total target population was 772 persons (see Table 1).

Table 1: Target Population

Category	Target Population
Teachers	674
Deputy Principals	49
Principals	49
Total	772

Source: Ministry of Education, Kakamega North Sub County Office (2022)

The study used Krejcie and Morgan (1970) Table for determining the sample size. From the table a target population of 772 gives a sample size of 232 persons. Respondents selected by the researcher were sampled from the five educational zones Kakamega North Sub County using a proportional to size sampling (PPS) technique. The following formula (Lohr, 1999) was utilized to work with proportions. Using the PPS method at this stage improves exactness of a sample size given by focusing on the samples with most important components, which take the utmost effect of population estimations (Pedhazur & Schmelkin, 1991). Therefore, the proportion of under-selection of teachers, Deputy Principals and Principals is as shown in Table 2.

Table 2: Sample Size

Educational zones	Number of Principals	Number of D/Principals	Number of teachers	Sample size Totals
Kabras East	3	3	47	53
Kabras Central	3	3	34	40
Kabras South	2	2	31	35
Kabras North	3	3	39	45
Kabras West	4	4	51	59
Total	15	15	202	232

Analysis of collected data was done by verifying raw data to check omitted or incorrect data. Clustering of responses into varied classes was done by coding the collected data that was quantitative as well as qualitative. This study being descriptive in nature; it utilized the frequencies, percentages and means in analyzing data and presented in tables. Chi-square test of association was used to prove the hypothesis of the study. Qualitative data was coded and analyzed thematically.

Results

The study sought to establish the effect of teachers' professional knowledge application appraisal practices on students' academic performance in public secondary schools in Kakamega North sub-county, Kenya. It hypothesized that:

HO₁: There is no statistically significant relationship between effect of professional knowledge application appraisal practices and students' academic performance in public secondary schools in Kakamega North Sub-county.

The respondents were asked to state, through a number of items, whether their professional knowledge application appraisal practices had an effect on students' academic performance. The teachers were therefore asked to state whether they agreed with a set of given statements on how their professional knowledge application appraisal practices enhanced students' academic performance in public secondary schools in Kakamega North Sub-county. The results were as summarized in Table 1.

Table 1: Teachers Response on Whether the Following Variables affect Students' Academic Performance

Variables	Yes	No	Total
Preparation of lesson plans	169 (86.67%)	26 (13.33%)	195 (100.00%)
Preparation of records of work	147 (75.38%)	48 (24.62%)	195 (100.00%)
Use of approved schemes of work	129 (66.15%)	66 (33.85%)	195 (100.00%)
Preparation of lesson notes	141 (72.31%)	54 (27.69%)	195 (100.00%)
Availability of test/examinations and their marking schemes	150 (76.92%)	45 (23.08%)	195 (100.00%)
Use of recommended text books in class	119 (61.02%)	76 (39.08%)	195 (100.00%)
Preparation of learners progress records	87 (44.62%)	108 (55.38%)	195 (100.00%)
Lesson observation and ratings by School managers	114 (58.46%)	81 (41.54%)	195 (100.00%)

Majority of the respondents believed that preparation of lesson plans (86.67%), preparation of records of work (75.38%), use of approved schemes of work (66.15%), preparation of lesson notes (72.31%), test/examinations and their marking schemes (76.92%), and use of recommended text books in class (61.02%) had a big influence on students' academic performance. Despite this a sizeable number of the respondents observed that preparation of learners progress records (55.38%), lesson observation and ratings by School managers (41.54%) had no big influence on students' academic performance. This implies that most of the school managers easily manage their teachers on preparation of lesson plans, preparation of records of work, use of approved schemes of work, preparation of lesson notes, and test/examinations and their marking schemes and use of recommended text books in class. These results are consistent with those of Ojuku (2019) who observed that assessment of curriculum should be led by the supervision, configuration, classification and marking of exams and therefore stakeholders should not exaggerate the contribution of teachers to curricula assessment with respect to school testing regulation.

As evidenced in Table 1, majority of the respondents (58.46%) felt that lesson observation and ratings by the school management had an influence on students' academic performance. Despite this a sizeable majority of the respondents (41.54%) felt that lesson observation and ratings by the school management had no influence on students' academic performance. This might have been due to their dislike of being observed and rated by their seniors in Management as one of the Deputy Principals put during the interview:

".....teachers in schools dislike our lesson appraisals and would do everything to avoid it. If they are given a chance to choose on whether it should be done away with or not, they will choose the later. Very few of them support the process and even some of those who support it they do it out fear of victimization."

This implies that there is need to sensitize teachers on the importance of lesson observation and ratings to enable them change their attitude towards it. Their negative attitude to lesson observation and ratings has made school managers to struggle in enhancing students' academic performance in public secondary schools in Kakamega North Sub-County. These findings were in agreement with Hadi (2006) who observed that the assessment scores of teachers are associated with the grades of their students. The assessment outcomes were associated with the student success adversely.

The researcher thus carried out a Chi-square test to determine the variables that had a significant relationship with students' academic performance in public secondary schools. The results were as summarized in Table 2.

Table 14: Chi-Square Test Results for the Association between the Independent Variable and students' academic performance

Association between	χ^2	<i>p-value</i>	df
Preparation of lesson plans	45.335	.001	1
Preparation of records of work	64.962	.248	1
Use of approved schemes of work	32.991	.003	1
Preparation of lesson notes	28.372	.001	1
Availability of test/examinations and their marking schemes	72.768	.345	1
Use of recommended text books in class	47.342	.104	1
Preparation of learners progress records	47.320	.832	1
Lesson observation and ratings by School managers	27.501	.004	1

Note. df = degrees of freedom; n = 195

According to Table 2, the following variables were significant showing that they affect students' academic performance: preparation of lesson plans ($\chi^2 (1) = 45.335, p=.001, n=195$), preparation of lesson notes ($\chi^2 (1) = 28.372, p<.001, n=195$), and lesson observation and ratings by School managers ($\chi^2 (1) = 27.501, p<.004, n=195$). This implies that only three of those variables had significant results with students' academic performance. Thus, professional knowledge application appraisal practices by teachers were found to influence students' academic performance. This was indicated via the following items: preparation of lesson plans, preparation of lesson notes and and lesson observation and ratings by School managers. This led to the rejection of the null hypothesis, that, there is no statistically significant relationship between teachers' professional knowledge application appraisal practices and students' academic performance in public secondary schools. These findings were in tandem with those of Oguta and Getange (2019) who in his study established that teachers' professional knowledge and application positively affect students' academic performance. The results are also in support of Pollard (2006), who claimed that effective preparation offers stability and order and protection for students. The results also reflect Ajayi's and Ayodele's and Ige. (2012) views that planning is one of the management elements which is seen as the method of evaluating what to do in advance, so that work is completed at a minimal risk of failure or problem. They found that inability to execute a schedule leads to inefficiency, undirected intervention and capital depletion. They argued that preparation for a lesson by a teacher is highly important to efficacy and that organization is essential in order to accomplish an objective.

Conclusion

The study established that teacher professional knowledge application appraisal practices affects students' academic performance in public secondary schools in Kakamega North Sub-county. It was established, through a Chi-square test,

that only three variables that explained teacher professional knowledge application appraisal practices – preparation of lesson plans, preparation of lesson notes, and lesson observation and ratings by School managers had a statistically significant relationship between teachers’ professional knowledge application appraisal practices and students’ academic performance in public secondary schools. Therefore the study concluded that teacher’ professional knowledge application appraisal practices through preparation of lesson plans; preparation of lesson notes; and lesson observation and ratings by School managers had a significant relationship with the academic performance of Secondary school students.

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