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RESEARCH ARTICLE

ACADEMIC MOTIVATION AND GENDER AS DETERMINANTS OF ACADEMIC PERFORMANCE IN SECONDARY SCHOOLS

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ABSTRACT

The purpose of this study was to determine the contribution of academic motivation and gender to academic performance among secondary school students attending day schools within Nakuru municipality. The study was based on the Self-Determination Theory by Ryan and Deci which explains two main components of human motivation; (a) humans are motivated to maintain an optimal level of stimulation, and (b) humans have basic needs for competence and personal causation or self-determination. The theory indicates that when these needs are met for the students, they will be intrinsically motivated and will actively engage in learning. The study utilised a mixed approach and adapted the ex-post facto design. The target population comprised all Form Two and Form Four students in the seventeen secondary schools in Nakuru municipality from which seven day schools were sampled using the stratified random sampling technique. The sample was made up of 489 students. Data was collected using a students' questionnaire. The academic performance scores were obtained from the school records for two terms. Cronbach's alpha was used to estimate reliability and expert judgment technique was used to determine validity. The major statistical methods used in this study were: Pearson's r, analysis of variance (ANOVA), and Tukey's HSD post hoc test. The level of significance used for statistical tests was .05. The data was analyzed using Statistical Package of Social Science (SPSS). Descriptive statistics, means, frequencies, percentages and standard deviations were used for data presentation and to explain the variables in this study. The findings of this study indicated that there was a positive relationship between academic motivation and academic performance. Gender was found to strongly contribute to the learners' academic performance. These findings will assist teachers, school administrators and other stake holders to engage in interventions in school and at home, that can improve the quality of learning and hence boost the students' academic performance and to boost academic motivation.

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INTRODUCTION

Academic motivation is a very important concept in learning and to the student's academic performance. Motivation is an unobservable process and can be inferred from actions and verbalizations. It involves goals which may not be explicit; and it requires activity which is instigated and sustained. Development of academic motivation in students ought to be an important goal for educators and teachers because of its inherent importance for the future. Research by Anderman and Maehr (1994) has shown a decline in academic motivation and academic performance in many children as they move from elementary school into secondary school. Academic motivation is an important psychological construct for learning and academic performance in all the school subjects. The relationship between academic motivation and academic performance is still unclear and can only be determined with continued observation of the students. In this study the contribution of academic motivation towards academic performance was explored. The study sought to determine the degree of relationship between these variables and how they were related to gender. Regarding gender differences, Kumba (2009) stated that they persist in education in Kenya even after several decades of intense scrutiny and policy change. According to Rwenji (2009) a total of 305,015 candidates sat for 2008 KCSE examination, of this number 139,424 (46 %) were girls and 165,591 (54 %) were boys.

According to Limo (2009) girls continue to perform dismally compared to boys. Although there was an increase in girls' enrolment, their academic performance remained below par. The Education minister reported that to address these disparities, strategies needed to be instituted to reduce the gaps. There is little doubt that education serves as a key for understanding gender issues in part because it largely mirrors

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social relationships in society (Persell, James, Kang, and Snyder, 1999). For example, by examining gender in higher education we learn that one's gender is related to one's educational attainment, which in turn is highly related to income. Regarding gender differences in academic performance, in particular, most of the attention has been at the elementary levels and in higher education (Hallinan, 2000; Nowell and Hedges, 1998). According to Marzano (2003) while the link between motivation and academic performance may seem obvious, this issue frequently slips through the cracks in discussions about school reform and improvement. As schools focus on helping all students achieve high standards, reaching out to engage and encourage learners becomes increasingly important. Clearly, students who are not motivated to engage in learning are unlikely to succeed. Student academic performance is a more important out come for education and moves to improve that performance are crucial in the provision of education. Marzano further posits that educators can and do affect students' level of engagement in learning. By simply recognizing the educators' power is a critical step in motivating students and by further recognizing that student academic motivation can foster learning and engagement in school.

Statement of the Problem

A performance evaluation report by the Kenya National Examination Council (KNEC), indicates that in the year 2008, only 24.56 % of the candidates scored a mean grade of C+ plus and above (a total of 72,679 candidates) as compared to 30 percent in the year 2007 (a total of 82,134 candidates) and 62,926 or 25.86 % in 2006 (KNEC report, 2009). Specifically, public day secondary schools in Nakuru municipality in the year 2008 obtained a mean score of 4.3520 and in 2009 a mean of 4.3007 (DEO's Office Nakuru, 2009). These results indicate a downward trend in the students' academic performance at the end of their secondary school course. This study evaluated how academic motivation influences academic performance among Form two and Form four students in Nakuru municipality. The study also explored how gender of the student contributes towards academic motivation and academic performance.

Research Objectives and Hypotheses

The objectives of this study were to:

- Find out how gender influences academic motivation among secondary school students.
- Determine the influence of gender on academic performance among secondary school students.

The following null hypotheses were tested:

HO_1: There is no significant difference in academic motivation among secondary school students by gender.
HO_2: There is no significant difference in academic performance among secondary school students by gender.

Theoretical Framework

This study was based on the self-determination theory by Deci and Ryan (1985). This is a motivational theory of particular importance for secondary school educators. This theory describes students as having three categories of needs: needing a sense of competence, of relatedness to others, and of autonomy. The Self-determination theory indicates that intrinsic motivation (doing something because it is inherently interesting or enjoyable), and thus higher quality learning, flourishes in contexts that satisfy human needs for competence, autonomy, and relatedness. Students experience competence when challenged and given prompt feedback. Students experience autonomy when they feel supported to explore, take initiative and develop and implement solutions for their problems. Students experience relatedness when they perceive others listening and responding to them. When these three needs are met, students are more intrinsically motivated and actively engaged in their learning (Ryan andDeci, 2000).

The Self-determination theory has identified ways to better motivate students to learn at all educational levels. An enormous amount of research shows the importance of self-determination for students in elementary school through college for enhancing learning and improving important post-school outcomes (Deci and Ryan, 1985, 2000). Schools can use the self-determination instructions as a way to better motivate students and meet the growing need to teach children and youth ways to more fully accept responsibility for their lives by helping them to identify their needs and develop strategies to meet those needs. Self-determination theory (SDT) assumes that inherent in human nature is the propensity to be curious about one's environment and interest in learning and developing one's knowledge. All too often, however, educators introduce external controls into learning climates, which can undermine the sense of relatedness between teachers and students, and stifle the natural, volitional processes involved in high-quality learning (Sheldon, 1995).

Research Design and Methodology

This study adopted a causal comparative research design which is also known as ex-post facto design. The ex-post facto research design is the technique in which the investigator selects rather than manipulates the variables. Inference about the relationship among the variables is made, without direct intervention from the variations of independent and dependent variables (Kothari, 2008). This implied that the researcher noted the dependent variables and retrospectively studied the independent variables for their possible effects on the dependent variables. The variable, which were of interest in this present research, were not lent to any manipulation. For instance, gender is a characteristic, whether biological or socially influenced, by which people define male and female and cannot be manipulated. Quantitative researchers in psychology aim to test a theory or describe an experience "through observation and measurements in order to predict and control forces that surround us" (Kothari, 2008). Quantitative methodology in this study was also used because of its strong tendency to make comparison and general sable knowledge across settings that is externally valid. However, there were similarities and complementarities between qualitative methodology and quantitative methodology which make a combination of the two a more powerful methodology for this research.

Population and Sample Size

Nakuru Municipality has a total of 17 day public secondary schools of which 5 are provincial and twelve are of district status. Of the 17, a sample of 7 schools was chosen by stratified random sampling. Thus, the sampled schools comprised 1 girls' school, 1 mixed-normal school and 5 mixed-segregated schools. In Nakuru municipality, there were 5 provincial schools and twelve district schools. Thus, the sample comprised 3 provincial schools and four (4) district schools. While in schools with more than one stream per class, random sampling was used to select one participating stream in Form Two and Form Four. A total sample of 489 students (212 boys and 277 girls) drawn from Forms two and four was used for the study.

Data Collection Methods

Document Analysis

The researcher carried out document analysis. Students' academic performance details and class attendance data were obtained from the schools records as a source of primary data. According to Fraenkel and Wallen (2000), primary data is important for all areas of research because it is unvarnished information about the results of an experiment or observation. No one has tarnished it or spun it by adding their own opinion or bias so it can form the basis of objective conclusions. The data for academic performance was collected by recording the scores of all the subjects from the end term examinations for each Form two and Form four students. The scores for the school subjects were sought for because they were used to give the students' academic performance. The raw scores were transformed to T-scores for purposes of comparison, correlations, discussion and analysis.

The Academic Motivation Scale and Scoring

The students' questionnaire (The Academic Motivation Scale, AMS) was made up of two parts; Part A sought demographic information such as gender. Part B of the students' questionnaire (AMS) was adapted from Vallerand *et al*. (1992) and the researcher's own self-made items consisted of four sub-scales which were used to measure the students' academic motivation. The first subscale, which consisted of 5 items, which were used to determine students' level of interest towards learning. Two examples from this part were: "I am very interested in my secondary school courses", and "Schoolwork bores me" The second subscale (part), consisted of 5 items too, that were used to measure students' education expectation. Examples from this part were: "I do not concentrate very well when I study for a test", and "I like hard work because it is a challenge" The third subscale, which consisted of 5 items, which were used to measure the students' self-confidence towards learning.

Examples from this sub-scale were: "I always feel confident in high school that I would get pretty good grades", and "I work hard at my schoolwork in school" The fourth sub-scale also consisted of 5 items, that determined the students' perception towards learning. Examples from this sub-scale were: "I enjoy going for classes" and "My friends tend to identify me as a person who is interested in academic work" All these items were to provide a measure for academic motivation for each student. Each item in the above questionnaire was measured using a Likert scale that ranges from "strongly disagree" =1 point to "strongly agree" = 5 points) for positive items and the negative items were scored "strongly disagree" =5 points to strongly agree" = 1 point). The students' level of motivation was assessed by obtaining a total score for the responses. The highest possible score in the academic motivation scale was 100 whereas the lowest possible score was 20.

Data presentation, analysis and Interpretation

This section presents the data analysis and interpretations. The data collected from the students quantitative in nature. The analyses and interpretations are based on the research questions and null hypotheses. Factor analysis was used to confirm the appropriateness of the items for each dimension of academic motivation and determine the construct validity of AMS. The Cronbach's Alpha was employed to test the reliability of the instrument. Correlation analysis was undertaken to determine if the dependent variable had a strong association with the predictor variables. Pearson's correlation coefficient (r) was used to establish the strength of the association. If the value of "r" was high the researcher proceeded to perform regression analysis. The coefficient of determination (R^2) was used to show the explanatory power of the predictor variables of this study.

Analysis of the Variance (ANOVA) was used to test specific hypotheses as depicted hence facilitating study inferences through accepting or rejecting the null hypotheses. The F statistic was used to reject or uphold the hypotheses in the study. The Tukey's HSD post hoc test was used to determine which pairs of groups were significantly different. The Tukey's HSD *post hoc* test could also be used for different sample sizes *n* for the groups (Keselman and Rogan, 1977). The research hypotheses were all stated in the null form and they sought to establish the influence of gender on academic motivation and academic performance. Data was analysed using the SPSS 17.0 software. The findings are presented in form of tables and graphs.

The Relationship between Academic Motivation and Academic Performance

The study ventured into establishing the extent of relationship that existed between academic motivation and academic performance. Academic motivation is expected to help educational stakeholders to predict the students' academic performance. The relationship of academic motivation on academic performance was analysed.

The following hypothesis was tested:

HO: There is no significant relationship between academic motivation and academic performance among secondary school students.

A correlation of the academic motivation scores with academic performance scores was computed in order to establish the quantitative value of the observed relationship. The findings presented in Table 1.

Table 1. Correlation between Academic Motivation and Academic Performance

		Academic motivation	Academic performance
Academic motivation	Pearson correlation	1.00	.112*
	Sig.(2 tailed)	-	.013
	N	489	489
Academic performance	Pearson correlation	.112*	1.00
	Sig.(2 tailed)	.013	-
	N	489	489

*p < .05

The Pearson correlation coefficient between academic motivation and academic performance is r = .112, which shows a positive correlation between the two variables. Since p = .013 is less than p ≤ .05, the correlation is statistically significant. This indicates that the two variables vary in the same direction, that is, when academic motivation increases academic performance also increases and vice versa. There is a strong relationship between academic motivation and academic performance. The coefficient of determination between academic motivation and academic performance is R^2 = .01, which shows that 1 % of the students academic performance was influenced by academic motivation.

The Influence of Gender on the Students' Academic Motivation

The aim of this hypothesis was to determine the influence of gender on the students' academic motivation. The respondents had indicated their gender in the personal information questionnaire as either male (boy) or female (girl). An analysis of variances between the two variables was carried out.

The following null hypothesis was tested:

HO_1: There is no significant difference in academic motivation among secondary school students by gender.

Table 2 indicates that female students (girls) scored better than male students (boys) in the AMS as indicated by a mean of 80.40 compared to that of 79.78 for males (boys). To test whether the two mean scores were significantly different, a one-way analysis of variance (ANOVA) was conducted. The result in table 2 indicates an F observed of .45 which was statistically significant at .05 level of significance. A critical value of F (3.84) was obtained from the statistical tables for the F distribution. Since F_{ob} = .45 < F_{crit} (1, 487, .05) = 3.84, HO_1 was accepted implying that there is no significant difference in academic motivation among secondary school students by gender. The high academic motivation mean score obtained by girls is not significant implying that boys and girls do not differ significantly in their academic motivation.

Table 2. Mean Differences in Academic Motivation and Academic Performance by Gender

	Academic Motivation		Academic Performance	
Participants	Mean	F	Mean	F
Gender		.45*		11.70*
Male (n=212)	79.78		48.68	
Female (n=277)	80.40		44.76	

F = ANOVA results, *p < .05

The Influence of Gender on Academic Performance

The aim of the hypothesis was to determine the influence of gender on academic performance among secondary school. The respondents had indicated their gender in the personal information questionnaire as either male (boy) or female (girl). An analysis of variances between the two variables was carried out.

The following null hypothesis was tested:

HO_2: There is no significant difference in academic performance among secondary school students by gender.

The male respondents had a higher mean (48.68) in academic performance as compared to the female respondents who had a mean of 44.76. This difference in the mean score was marginal. To test whether the two mean scores were significantly different, a one-way analysis of variance (ANOVA) was conducted. The results in table 2 indicate an F observed of 11.70 which was not statistically significant at .05 level of significance. A critical value of F (3.84) was obtained from the statistical tables for the F distribution. Since Fob = 11.70 > Fcrit (1, 486, .05) = 3.84, HO_2 was rejected implying that there is a significant difference in academic performance among secondary school students by gender. The higher mean score obtained by the boys was significant as compared to the scores obtained by the girls. The male students did better than the female students in academic performance.

DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

This section discusses the findings of this study.

Academic Motivation

The female students (girls) scored better than male students (boys) in the AMS as indicated by a mean of 80.40 compared to that of 79.78 for males (boys). The two means scores were not significantly different, see table 2. This study found that there was no significant difference in academic motivation among secondary school students by gender. The two groups of students had the same level of academic motivation. This was contrary to a study by Boggiano, Main, and Katz (1991) which found significant differences in motivation between female and male students.

Academic Performance

This study determined the influence of gender on academic performance among secondary school. The male students did better than the female students in academic performance. The issue of gender cannot be underrated because it is a factor that can make or mar student academic performance in school. This is in agreement with a research by Hanushek (2007) who found that the influence of gender on grades is significant and that gender differences are much greater in teacher-awarded grades in comparison to results on achievement tests. The relationships between demographic features of students (such as gender) and their academic performance appear to be

inconsistent in different empirical studies such as by Skaalvik and Skaalvik (2004). The study determined the influence of age on the students' academic performance in the teacher made tests. From the findings, age had a significant influence on the student's academic performance. The youngest students had higher scores in academic performance than the oldest students. Contrary to this, a study by Rumberger (1995) found that late entrance and repetition do not exert negative effects on academic performance. He found that the older students performed better than those who go to school at an early age. The study also showed that those students who have an opportunity to repeat some grades perform better at secondary school level and that late entrance and repetition improved academic performance especially among older students. Another study by Clark and Ramsay (1990) detected a negative relationship between age and academic performance, which is also a contradictory finding to the preset study.

This study determined the relationship between academic motivation and academic performance. It was found that there was a significant relationship between academic motivation and academic performance among secondary school students. This finding is supported by a study by Pintrich andSchunk (1996), which posited that academic motivation is thought to have a bearing on the learner's academic performance. Academic motivation is expected to help educational stakeholders to predict the students' academic performance.
The Pearson correlation coefficient between academic motivation and academic performance is r = .112, which shows a positive correlation between the two variables. The coefficient of determination between academic motivation and academic performance was R^2 = .01, which showed that 1 % of the students' academic performance was influenced by academic motivation. A study by Niebuhr (1995) included an investigation of the relationship of individual motivation and its effect on academic performance. The findings of this study indicated that student motivation showed a significant influence on the relationship with academic performance. However, other studies show that there is a relationship between academic motivation and academic performance. For example, a study carried out by Aire and Tella (2003) on student motivation using 276 students revealed that there is a relationship between academic performance and motivation. Despite the variations in the findings by some studies, this study found that there was a strong relationship between academic motivation and academic performance.

Study Findings

The findings of this study showed that there was a positive relationship between academic motivation and academic performance among secondary school students. In fact, it was shown that 1 % of the students' academic performance was influenced by academic motivation, see Table 1. Gender had no significant influence on the students' academic motivation. Gender had the strongest impact towards academic performance. The variables academic motivation and gender were considered predictor variables to the criterion variable academic performance. These predictor variables in combination were found to significantly predict the respondents' academic performance. This study adds to the body of literature in research involving gender, academic motivation and academic performance in general.

Recommendations

On the basis of this study's findings, the following recommendation is made: Programs that will enhance academic motivation of students should be used in all secondary schools, such as engagement in school work, allowing them to make choices and improving their belief systems and perceptions towards school among other programs.

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