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GENDER DIFFERENCE IN ACADEMIC ACHIEVEMENT OF STUDENTS IN KINANGOP SUB COUNTY, NYANDARUA COUNTY, KENYA

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Abstract:
Despite vigorous efforts from the government and non-government sectors to ensure gender equality in education, there is still a serious gap between boys and girls in academic performance and achievement. There are very limited studies focused on the issues of gender difference in academic performance of students in Nyandarua County. This study sought to examine gender differences in the academic performance of students in Kinangop Sub County, Nyandarua County. The study adopted Social Cognitive Theory. The study adopted Ex post facto research design. Thirty-seven schools from Kinangop Sub county in Nyandarua County were selected using multi – stage stratified random sampling method to reflect the various categories of schools in the County. The Sub County has extra county, county and sub county schools. The schools were stratified based on their average Kenya Certificate of Secondary Education (KCSE) performance in years; 2015, 2016 and 2017. Two thousand four hundred and seventy students participated in the study. Secondary data were obtained from the Sub County Education offices. The data collected were analyzed using descriptive statistics of mean and Independent samples t-test. From the findings there was significant difference in academic achievement among the gender of students, with the male students (Mean = 67.89, SD=4.92) having better academic achievement scores than their female counterparts (Mean = 64.11, SD=3.3). The male students were found outperforming their male counterparts. There was statistically significant difference [t (45) = 3.161, p=.003] in academic achievement between gender. The study concluded that there was a significant gender differences in the academic performance of students in Kinangop Sub County. the study recommends that learners should be thoroughly motivated to engender higher level of achievement in Secondary School and indeed in all subjects at that level of education irrespective of gender. The school management should abolish the creation of gender stereotype in classes so as to enable both male and female students thrive in their

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academics. The findings of this study will be beneficial in addressing the issue of male–female achievement differences at secondary school level in Kenya.

Keywords: gender, differences, academic, achievement, students

1. Introduction

Education is a very important human activity. It helps any society fashion and model individuals to function well in their environment. The purpose of education is to equip the citizenry to reshape their society and eliminate inequality according to Boit, Njoki and Chang'ach (2012). In particular, secondary education is an important sector in national and individual development. It plays a vital role in creating a country's human resource base at a level higher than primary education (Achoka, Odebero, Maiyo & Mualuko, 2007).

The vital role played by secondary education may partly explain the Kenyan government decision to introduce free tuition in public secondary schools in order to increase its demand (Ohba, 2009). One of the indicators of quality of education being provided is cognitive achievement of learners (United Nations Educational, Scientific and Cultural Organization, [UNESCO], 2005). According to Adediwura and Tayo (2007), academic achievement is designated by test and examination scores or marks assigned by the subject teachers. It could also be said to be any expression used to represent students' scholastic standing.

Lewin, Wasanga and Somerset (2011) reported that the academic achievement of students at secondary school level is not only a pointer of the effectiveness of schools but also a major determinant of the well-being of youths in particular and the nation in general. Yusuf and Adigun (2010); Lydiah and Nasongo (2009) noted that the performance of students in any academic task has always been of special interest to the government, educators, parents and society at large. Schools are commonly evaluated using students' achievement data (Heck, 2009). Teachers cannot be dissociated from the schools they teach and academic result of schools. One of the intriguing explanations on variation in gender on achievement of students academically relates with the dynamics of gender interaction between the student and the teacher, especially to gender combination of students and teachers. Gender refers to a wide range of biological, behavioural, physical and mental characteristics regarding to and differentiating the female and the male population (Adigun, Onihunwa, Irunokhai, Sada & Adesina, 2015). Gender issues are therefore critical and require more research because it is increasingly becoming clear that the boy child is threatened in learning institutions all over the world. The past two decades have witnessed the reversal of a remarkable gender gap in education. In the US and many other developed countries, girls outperform boys in reading scores, top GPA distribution in high school and college attendance (Campbell 2000; Vincent-Lancrin 2008; Fortin, Oreopoulos and Phipps 2015). The international

phenomenon of female dominance in academic achievements raises new questions about the causes of this disparity.

For instance, is it only by coincidence that females comprise the majority of teachers in elementary and secondary schools during the period when girls achieve more and behave better than boys. Gender bias makes boys more active than girls in the classroom during the teaching and learning process (Christine, 2015). An investigation by Nana (2012) in Georgia revealed that, instructors mostly treat students of various genders differently and have stereotyped the potential of boys and girls.

Regardless of better academic outcomes in girls', their potentials are underestimated leading to low morale and their conduct is confined to stereotyped female roles. This is likely to promote gender-biased perception resulting in unequal treatment and low self-esteem among girls. Studies conducted across the world among the students studying in different levels found a significant gender difference in academic performance. Filgonali and Sababa (2017) noted that, treatment of male and female students should be treated equally during teaching and learning, and all students should be provided with equal opportunities and same encouragement level and engagement irrespective of gender.

Lauren (2012) noted that within the learning environment, gender plays a critical role, since teachers respond differently to boys and girls within the same classroom. Therefore, teachers tend to confirm the traditional gender roles taught by the society. In Norway Torberg and Linn (2011) explored the educational evaluation schemes and gender gaps in student achievement and the study revealed that, Norwegian, girls perform better academically when assessed by a male teacher. The study concluded that, the gender grading gap seems to be related to characteristics of the teachers.

As noted by Palt, 2018), it is crucial that African countries prioritize gender diversity and appreciate the role that women can play in the development of scientific solutions to address these issues at local level. Based on a rich dataset that was made up of 1,800 primary schools and 40, 000 students in ten francophone Sub-Saharan African countries, Lee, Rhee and Rudolf (2017) found out the link between teacher gender, student gender, and performance level. The results indicated that female teachers had high level of achievement in terms of teaching style, and this had considerable influence on female and male students' achievement.

In Nigeria, a study by Nnamani and Oyibe (2016) on gender and academic achievement of secondary school Students in social studies in Abakaliki urban of Ebonyi state revealed that the mean academic achievement score of boys' learners in post primary school was lower than the mean academic achievement scores of girls' learners. In Nigeria, Goni, Yaganawali, Ali, Bularafa (2015) in a study conducted among college-going students did not observe the significant gender difference in academic performance. A study by Fatokun and Omenesa (2015) revealed insignificant variation in both genders difference and academic achievement despite the fact that girls were not as active as boys in the classroom interaction during teaching and learning. Implying, students can achieve high academic scores irrespective of their gender.

Daloz (2000) results indicated that there were no significant differences exist between gender and Academic performance in Colleges of Education in Borno State, in favour of female students. In Ethiopia. Eshetu (2015) reported no statistically mean difference between male and female students was found in regional examination both in average result and subject wise analysis. The proportion of male and female students both in the top and lower achieving groups was not statistically different. Faisal, Shinwari, & Hussain (2017) found no significant difference in the academic performance in terms of gender in multiple choice questions and short essay questions.

While appreciating the value of rewarding teachers who produce better results, teachers should also not escape a portion of blame when students perform poorly. In Kenya Mutai (2011) study revealed the following findings: gender was strongly associated with mathematics achievement. As a result, boys' schools performed better than girls' schools. Boys had a stronger affinity and interest towards mathematics. The study was only quantitative in nature and it had no qualitative findings. Therefore, the present study filled in gaps in literature by adopting both quantitative and qualitative methods.

Wangu (2014) in a study conducted among the students of secondary schools in Kenya observed boys passing more than girls. In the classroom instruction when boys call out teachers, it seems acceptable whereas when a girl calls out, she is sometimes scolded and is told that calling out teacher by a girl is not an appropriate behavior. This strongly indicates that boys should be more assertive, and girls should be passive which may lead to poor performance and failure in girls. This study sought to examine gender differences in the academic performance of students in Kinangop Sub County, Nyandarua County.

2. Theoretical framework

Social cognitive theory (Bandura, 1997, 1986) underscores the role of human agency within a triadic interaction of individual, behavioural and environmental factors. The idea that individuals are able to influence their actions has laid the foundations for the development of the self-efficacy construct. In a socio-cognitive perspective, self-efficacy is defined as "*people's judgements of their capabilities to organise and execute courses of action required to attain designated types of performance*" (Bandura, 1986). Applied to the teaching profession, self-efficacy beliefs shape the teacher's effort and persistence, resilience towards failures, and the stress level in response to demanding tasks.

The basic model of educational effectiveness aimed to open the "black box" of a classroom, revealing teacher factors which contribute to student cognitive and non-cognitive outcomes (Scheerens, 2016). It was further developed into the dynamic model, which not only identified factors contributing to variation in student outcomes, but also attempted to explain the interrelation between these factors at different levels through the application of relevant theories (Creemers & Kyriakides, 2006). This study is placed within teacher effectiveness research strand, which emerged in the early 2000s within a

broader framework of educational effectiveness, and which focuses on teaching as facilitated learning through learning activities and student engagement (Scheerens, 2005).

3. Literature Review

3.1 Academic Achievement

Simpson and Weiner (1991), for example, defined achievement as attained success in any act while Hornby (2006) viewed it as the ability of an individual to reach a set goal through effort, skill or courage. In fact, academic achievement is the outcome of a good education and indicates how well a student or class of students is doing academically (Ali 2013). In the same vein, Ganai and Muhammad (2013) defined academic achievement as knowledge attaining ability or degree of competence in school tasks usually measured by standardized tests and expressed in a grade or unit based on pupils' performance. Academic achievement is commonly measured by continuous assessment and examinations.

It is worth mentioning that students' academic achievement is affected by a host of factors. Among these are factors classified by Ocho (2005) as student factors, teacher factors, environmental factors, and economic factors. First, academic achievement is generally affected by students' personal characteristics, namely their conscientiousness, personal efforts and motivation in addition to their intellectual abilities, learning strategies and awareness of academic goals.

Moreover, family support, social economic background, family income, parents' education, family participation and involvement and siblings in school have also a considerable effect on the academic success or failure of students (Abubakar, Bada 2012; Boujut, Bruchon-Schweitzer 2007; Majzub, Rais 2010). Academic achievement or performance in different subjects has always been an issue of great concern to students, teachers, parents, and specialists in education as well. Many reasons are behind the desire to achieve academic performance.

Some students, for example, seek self-satisfaction or want to demonstrate their competences while others try to attain high academic achievement to satisfy their parents or teachers by showing them that they are making efforts and working hard (O'Reilly, McNamara 2007). In the same way, parents desire and encourage their children to aspire to outstanding academic achievement while teachers adopt different strategies to ensure effective teaching and learning so that their students get good grades and perform well. A factor that is assumed to have a considerable effect on students' academic performance is gender. Indeed, differences in how both males and females perform academically have been noticed but need scientific confirmation. The gender gap in academic achievement is an important issue to explore as it is a significant aspect of educational inequality.

3.2 Gender and Academic Achievement

Gender and sex are not interchangeable; the term sex refers to the biological distinction between the two genders and cannot change. Hence, gender is an aspect concerning the responsibilities, roles, opportunities, constraints, and needs of males and females in all aspects of social context (Filgona & Sababa, 2017). Therefore, gender, is a critical issue, which has attracted the attention of teachers especially due to the fact that gender equality is a focus in all sectors of life. It is because of this that the current study attached a lot of importance in examining the extent to which learners' academic achievement is affected by gender.

Traditional and stereotypical/approaches to problem solving are grossly inadequate in the face of complex realities of our time. We need to be able to design ways forward and come up with different alternative solutions to seemingly naughty challenges of life. Unfortunately, the traditions of education and the thinking culture of our society make no provision for design -we see it as applying only to buildings and furniture (Hassan & Ogunyemi, 2008). Traditionally, girls in our society have been encouraged to conform, whereas boys are expected to be active and dominant risk-takers. Corroborating this view, Hassan and Ogunyemi, (2008) acknowledge that most boys are provided with toys that enhance their visual- spatial ability such as trucks, Legos (toys consisting of plastic building blocks and other components) and model. Spencer (2004) also affirms that that the games of girls are often highly structured requiring turn taking and rules. Thus, social expectations and conformity pressures may create cultural blocks to girls.

Fabunmi (2004) in a study discovered that gender composition has a significant relationship with students' academic performance and that gender composition has a significant influence on secondary school students' academic performance. Several studies have reported that female students outperform their male counterparts (Orabi, 2007; Dayioglu & Turut, 2007; Khwaileh & Zaza, 2010). Ghazvini & Khajehpour (2011) further argued that even gender difference exists at the level of cognitive functioning in the academic environment. Girls are likely to be more adaptive in learning in a different environment.

Many studies on gender discrepancies (Kahle 2004; Chang 2008; Lai 2010; Abubakar, Bada 2012; Eze, Ezenwafor, Obi 2015) focused on differences in performance related to different science subjects. There are many different points of view, a fact which makes it a contested area (Kahle 2004; Penner 2008; Guo, Tsang, Ding 2010). Some of these studies have shown significant gender achievement gaps, with boys generally outperforming girls in Math and Science (O'Reilly, McNamara 2007; Penner 2008; Else-Quest, Hyde, Linn 2010) and girls excelling at literacy subjects. Others noted that these differences were not consistent.

Ajai and Imoko (2015) undertook a study to assess gender differences in mathematics achievement and retention. The study proved that male and female students did not significantly differ in achievement and retention scores, which showed that they are capable of competing in mathematics. Likewise, Voyer and Voyer (2014) conducted a

research from 1914 through 2011 using a meta-analytic model and found out a small but significant female advantage that was largest for language courses and smallest for math and science.

In this vein, Voyer and Voyer (2014) stated although gender differences follow essentially stereotypical patterns on achievement tests, for whatever reasons, females generally have the advantage on school marks regardless of the material." This implies that in spite of the stereotypical belief that boys perform better than girls in tests as far as logical reasoning is concerned, we, as educators, observe a tendency from the part of females to excel in scientific subjects which require logic and reasoning. In fact, our study intends to confirm the extent to which this observation can be valid.

In Nigeria, a study by Nnamani and Oyibe (2016) on gender and academic achievement of secondary school Students in social studies in Abakaliki urban of Ebonyi state revealed that the mean academic achievement score of boys' learners in post primary school was lower than the mean academic achievement scores of girls' learners. Findings indicated that the boy and girl in post primary school students taught social Studies by men teachers had higher mean scores than boys' and girls' learners taught Social studies by women teachers and girl learners taught Social studies by men teacher performed better than masculine learners taught social Studies by men teachers and vice versa.

In Tunisia, a study by Natasha (2016) indicated that female teachers improve the academic performance of learners depending on the economic level of the location of the school. Findings indicate that gender interaction has an effect on learner's academic achievement. A study by Fatokun and Omenesa (2015) revealed insignificant variation in both genders difference and academic achievement despite the fact that girls were not as active as boys in the classroom interaction during teaching and learning. Implying, students can achieve high academic scores irrespective of their gender. In a study to determine the influence of gender on staff productivity in selected private universities in Kampala, Uganda, Anumaka and Ssemugenyi (2013), the findings showed that productivity did not differ significantly among employees apart from the punctuality aspect of work which was relatively higher in men.

Matheri (2015) determined the effects of principals' gender on leadership effectiveness in secondary schools in Mtito-Andei, Kibwezi Sub-County, Kenya. Results indicated that there was no significant relationship between the gender of principals and the effectiveness in the management of discipline and personnel in the school's environment.

In a study by Waseka, Simatwa and Okwach (2016) to assess the influence of teacher factors on the performance of learners in secondary schools in Kakamega, the study found out that gender difference between male and female teachers was statistically significant determinants of students' academic performance. The study revealed that female teachers had the capacity to perform in core functions than male teachers since majority of students preferred being taught by female teachers.

The gender gap in academic achievement has been extensively examined in Western countries, yet virtually no rigorous studies of the gender achievement gap have been conducted in developing countries because of the limited availability of these countries' secondary education data. Therefore, the present study is an attempt to show gender differences in academic achievement.

4. Methodology

The study adopted Ex post facto research design. Thirty-seven schools from Kinangop Sub county in Nyandarua County were selected using multi – stage stratified random sampling method to reflect the various categories of schools in the County. The Sub County has extra county, county and sub county schools. The schools were stratified based on their average Kenya Certificate of Secondary Education (KCSE) performance in years; 2015, 2016 and 2017. Two thousand four hundred and seventy students participated in the study. Secondary data were obtained from the Sub County Education offices comprising of gender, type of school and performance in Kenya Certificate of secondary Education.

The data collected were analyzed using descriptive statistics of mean and Independent samples t-Test. Descriptive statistics of mean was used to answer the research question. The t-Test was used to test hypothesis one because of its superior power to detect differences between two means (Male and Female students' post test scores in the experimental group). Significance level of 0.05 was used to test the null hypotheses.

5. Results

The objective of the study was to establish the gender differences in the academic achievement among secondary school students. This objective was investigated by the use of an independent samples t-test. An independent-samples t-test was suitable method of statistical analysis because it is used when there is need to compare the mean score, on some continuous variable, for two different groups of subjects. When the means in academic achievement of each gender were computed as shown in the descriptive analysis shown in Table 1, it was clear that the form $\bar{x1} \neq \bar{x2}$ was achieved given that; Male $\bar{x1}$=64.11 and Female $\bar{x2}$=67.89.

Table 1: Group Statistics- Achievement Score between Gender of Students

	Gender	Mean	Std. Deviation	Std. Error Mean
Performance	Boy	67.8929	4.91663	.92916
	Girl	64.1053	3.29806	.75663

The findings indicated that the boy students had higher mean score of 67.89, with a standard deviation of 4.92 and standard error of .929 in academic achievement scores, compared to the female counterparts who had a mean score of 64.11, with a standard

deviation of 3.30 and standard error of .757 in the academic scores. From group statistics, male students reflected better academic achievement scores than their female counterparts.

5.1 Independent-sample t-test

To find whether there was any statistically significant difference, use of an independent samples t-test required setting and testing hypothesis. Thus, the hypothesis "*there is no gender difference in academic achievement among secondary school students*" was tested**.** This was done by conducting an independent-sample t-test with the p-value set at .05 and the null hypothesis was rejected when the p-value was less than .05. The independent-samples t-test result was represented in Table 2.

Table 2: Independent Samples Test on gender of students

		Levene's Test for Equality of Variances		**t-test for Equality of Means**						
		F	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**Std. Error Difference**	**95% Confidence Interval**	
									Lower	**Upper**
Performance	Equal variances assumed	3.66	0.06	2.94	45	0.01	3.79	1.29	1.19	6.39
	Equal variances not assumed			3.16	45	0.00	3.79	1.20	1.37	6.20

Given that the Levene's Test for Equality of Variances was not significant (p =.06, >.05) the assumptions of equal variances were not violated. It was evident that there was statistically significant difference [t (45) = 3.161, p=.003] in academic achievement between gender. Given that statistically significant difference was established, the null hypothesis was rejected. Hence, it was concluded that there was significant difference in academic achievement among the gender of students, with the male students having better (Mean = 67.89, SD=4.92 and SE= .929) academic achievement scores than their female counterparts (Mean = 64.11, SD=3.3 and SE= .757).

This finding agrees with Mutai (2011) who reported that gender was strongly associated with mathematics achievement. As a result, boys' schools performed better than girls' schools. Boys had a stronger affinity and interest towards mathematics. However, the finding disagrees with Eshetu (2015) who reported that there was no statistically mean difference between male and female students as was found in regional examination both in average result and subject wise analysis. The proportion of male and female students both in the top and lower achieving groups was not statistically different.

Gender disparities in academic achievement at lower grade levels have been minimized. This finding disagrees with Faisal, Shinwari, & Hussain (2017) who reiterated that there was no significant difference in the academic performance in terms of gender in multiple choice questions and short essay questions. The study found a significant difference between student's gender and their academic performance.

The findings indicate that male students outperformed female students. Meanwhile, the results agree with the findings of some other scholars like Wangu (2014) who claimed that male students outperform their female counterparts and Goni et al., (2015) who claimed that there is no such significant gender difference in student's academic performance. Despite being a dominantly patriarchal society in Nepal, the finding of this study like female outperforming their male counterparts seems interesting. There might be several reasons behind such results.

5.2 Types of school and academic achievement

The findings revealed that the academic performance of public schools is better than their private counterparts as summarized in Table 3. The findings indicated that the school had higher mean score of 67.35, with a standard deviation of 4.72 and standard error of .777 in academic achievement scores, compared to the private counterparts who had a mean score of 62.7, with a standard deviation of 2 and standard error of .633 in the academic scores. From group statistics, male students reflected better academic achievement scores than their female counterparts. The findings showed that the public-school students perform better compared with the private school students.

Table 3: Group Statistics-Academic achievement and type of school

	Type of school	Mean	Std. Deviation	Std. Error Mean
Performance	Public	67.3514	4.72709	.77713
	Private	62.7000	2.00278	.63333

It was evident that there was statistically significant difference [t (45) = 4.64, p=.000] in academic achievement between type of schools. Given that statistically significant difference was established, the null hypothesis was rejected. Hence, it was concluded that there was significant difference in academic achievement among the type of school, with the public school having better (Mean = 67.35, SD=4.73) academic achievement scores than their private counterparts (Mean = 62.70, SD=2.0 and SE= .633).

The findings indicated that there was a significant better performance of public-school students against their private school counterparts (mean difference = 4.65; t-test = 0.00 at 0.05). Table 4 show the t-test statistics of the students' gender performances. The mean difference of 4.65 indicated that the more mark was obtained in public school is significant hence not due to chance alone since the significance value of the test (0.00) is less than 0.05.

Table 4: Independent Samples Test on type of school

	Levene's Test for Equality of Variances			**t-test for Equality of Means**				
		F	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**Std. Error Difference**
Performance	Equal variances assumed	6.55	0.01	3.02	45	0.00	4.65	1.54
	Equal variances not assumed			4.64	36.07	0.00	4.65	1.00

Indeed, in this study, the mean difference shows that students' performance in private schools are not better than in public school. This result agrees with the findings of Okon & Archibong (2015) that reiterated that the type of schools, (single sex or mixed, private or public) has effect on the academic performance of students. This finding dispelled the rumor that private schools are just money-making schools without good academic standards.

Private schools are attended by choice and Okon & Archibong (2015) stated that the private primary and secondary schools are meant for privileged people or class, while the public schools are meant for the general public. Furthermore, this finding supports Okon & Archibong (2015) that private schools screen the candidates for admission after completion of primary education. It is ascertainable that the results gotten from the public schools is weightier compared to that of private schools because this is even more pronounced in the study area.

6. Conclusion

The study found that a large majority of the students had relatively an outstanding performance in public schools compared to private schools in as aspects of academic performance. The study concludes that gender matters in the academic performance of students. The male students perform better than their female counterparts. The gender variable should no more consist an obstacle or hindrance in learning or teaching school subjects.

6.1 Recommendations

All learners should be given equal opportunity and the same level of encouragement irrespective of their gender. Learners should be thoroughly motivated to engender higher level of achievement in Secondary School and indeed in all subjects at that level of education irrespective of gender. Based on these findings the school management should abolish the creation of gender stereotype in classes so as to enable both male and female students thrive in their academics. The parents should be more sensitive on both genders in ensuring the better education for their career and better future and giving them more

time for their assignment or to complete assigned tasks by teachers and study at home and schools as well, thereby resulting in better academic performance.

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