INFLUENCE OF STUDY SKILLS AND TEST ANXIETY ON ACADEMIC PERFORMANCE OF SENIOR HIGH SCHOOL STUDENTS IN THE TAMALE METROPOLIS

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ABSTRACT

This study was conducted to examine the influence of study skills and test anxiety on the academic performance of Senior High School (SHS) students in the Tamale metropolis of Ghana. A correlational research design was adopted for the study to investigate the relationships among these variables. The multi-stage sampling technique was employed to sample 354 SHS students to respond to the Study Skills and Test Anxiety Inventory tools. The academic performance of students was determined by computing the average test scores of students from two-semester examinations records in Mathematics, English Language, Integrated Science and Social Studies. Descriptive and inferential statistical tools as well as Pearson Product Moment Correlation Coefficient were employed to analyze the data. The study found significant positive relationships between SHS students' study skills and their academic performance. The results of the study further indicated that study skills significantly predicted the academic performance of SHS students. However, the study found no significant difference in the study skills of male and female SHS students. It was concluded based on the findings that, study skills and test anxiety largely influenced the academic performance of SHS students. It was therefore recommended that, school authorities such as the school heads should provide adequate resources for school counsellors to equip students with study skills in the various SHS to enable them improve their academic performance and, also overcome test related anxieties in the schools within the Tamale Metropolis.

KEYWORDS:- Study Skills, Test Anxiety, Academic Performance.

1. INTRODUCTION

To assess a student's level of achievement or proficiency in one subject, academic performance is often used. As a result, the academic performance of learners is very important to all stakeholders involved in the world's education system. Given that effective national development, social inclusion of individuals to become contributing members of society and achievement of personal goals and ambitions are only possible through good performance and high-quality education, (Onabamiro,2010; Abubakar, 2009; Aremu, 2002).

In recent years, evidence shows that the academic performance of Ghanaian SHS students in the WASSCE has consistently been below expectations. This abysmal performance is associated with several factors including poor study skills and test anxiety (Hayat, Yacoub, Aslam & Shabbir, 2022; Kieti, 2018; Boateng &Nyamakye, 2022). The poor performance of these students is a great concern to stakeholders as most of these students are unable to continue their education to higher levels. It is, therefore, necessary to address with utmost seriousness the present situation. This could happen if the underlying causes of low academic performance are identified and controlled.

Several factors have been identified by previous studies as contributing to the low level of academic performance among Ghanaian SHS students. Some of these factors include the lack of teacher motivation, deficiencies in the provision of learning materials, infrastructure deficit, funding for caterers and insufficient laboratory facilities (Baafi, 2021). Other factors associated with students' academic performance include the student's level of intelligence, study habits, parental support, learning difficulty, and socioeconomic background (Ossai, 2013, Llavore, Duran, & Dungan, 2015). Most of these factors have been examined by previous studies about academic performance. However, two critical factors that have been found to have links with academic performance are study skills and test anxiety (Essuman, Nyarko & Frimpong, 2021;Dortuo, 2020). Yet the link between these factors and academic performance has been given less research attention, especially in the Ghanaian context. It is based on this that the current study partly seeks to examine the influence of study skills on the academic performance of SHS students in selected schools in the Tamale metropolis.

According to Congos (2010),study skills and study habits are interchangeable concepts. In this study six categories of study skills: reading textbooks, memory, time management, note-taking, preparation for tests and concentration. Congos, 2010, Osa-Edohand Alutu, 2012 opined that one of the key elements of study habits that can improve performance is effective time management. Studying daily, creating a calendar or study schedule, and using your time effectively are examples of effective time management skills. Spending extra time studying without paying attention is not a good use of your time. Another important aspect of good study habits is concentration. It is the ability to focus while avoiding external distractions. To take good notes, you need to be able to listen carefully and also note what is said in the lecture. Study habits may include techniques for remembering what you have learned. To read a textbook effectively, you must not only read it but also develop the underlying themes and ideas and absorb the content.

Literature has emphasized the importance of students' studying skills to their achievement at study, this was also cited as an essential prerequisite for avoiding failure in studies. Students are facing

difficulties with their academic studies because of poor study habits or skills, which have an adverse effect on their performance in school (Gettinger & Seibert, 2002; Credé&Kuncel, 2008; Dortuo, 2021; Richard & Pilcher, 2023; Kämper,2023). Moreover, regarding the connection between study skills and academic performance, Ergene, 2011, Numan and Hassan, 2017, Hyseni Duraku and Hoxha, 2018 and Congos, 2010 revealed that the study skills of students and their academic performance are significantly and positively correlated among various groups of learners in different geographical areas and with varying demographic characteristics.

In addition, numerous studies have been conducted on the association between the concept of test anxiety and the academic performance of learners. According to the report of the studies conducted by Rana and Mahmood, 2010, Dordi-Nejad et al, 2011, Trifoni and Shahini, 2011, Chen et al, 2023 and Ambion, 2023, test anxiety and academic performance are inversely associated with each other, suggesting that learners who experience high levels of test anxiety accomplish less in their academic performance. Additionally, it has been established in their investigations that students who have minimal test anxiety may do better than people with high test anxiety.

Academic accomplishment is generally dependent on a student's study skills, which are considered essential to obtain good grades. A good habit of studying can boost a student's confidence and self-esteem. Similarly, one of the main problems that might negatively impact learners' academic progress is test anxiety. It has been suggested that students with effective study habits experience less test anxiety and higher academic achievement as compared to students with ineffective study habits (Ergene, 2011).Given the aforementioned study skills and test anxiety-related issues, it is necessary to investigate how these factors influence students' academic performance within the Tamale metropolitan area in Ghana.

Research Objectives
The study specifically aimed to:
1. Examine the effects of SHS students' study skills on their academic performance
2. Assess the impact of test anxiety on SHS students' academic performance in the Tamale metropolitan area.
3. Examine if differences exist between male and female SHS students' academic performance, test anxiety, and study skills.

The following hypotheses guided the study:
1. H_{01}: Study skill dimensions and SHS students' academic performance are not significantly related in the Tamale Metropolis.
2. H_{02}: Study skills do not significantly predict the academic performance of SHS students in the Tamale metropolis.
3. H_{03}: There is no significant correlation between test anxiety and academic performance of SHS students in the Tamale metropolis.
4. H_{04}: There is no statistically significant difference in the academic performance of male and female SHS students in the Tamale Metropolis.
5. H_{05}: There is no significant difference in the application of study skills dimensions by male and female SHS students in the Tamale Metropolis.

2. METHODOLOGY

Research Design

The study employed a correlational research design to examine the strength of the relationship among the variables in this study. Creswell (2014), recommends that, a correlational research design is useful when the study is designed to investigate the strengths and direction of relationships. The target population comprised all SHS 2 students in seven public Senior High Schools in the Tamale Metropolis with an estimated population of 4,441 consisting of 2,227 males and 2,214 females accounting for 50.1% and 49.9%, respectively.

Sample and Sampling

The sample size of354 SHS 2 students from five public SHS were calculated from the target population. This sample size was arrived relying on Krejcie and Morgan table of sample size determination. A sample of 354 SHS students was sampled out of 4,441 based on a 95 per cent confidence level with a margin of error of 5 per cent. A multi-stage sampling method was used to select research participants. First, the selection of five out of seven SHS schools in the Tamale metropolitan area was carried out through a simple random procedure using the lottery method to draw the individual schools. Second, a proportional sampling method was used to choose respondents from each school to ensure that proportional samples taken were representative. Additionally, having obtained a sample size of 354, it was easy to calculate the proportional allocations of the sample size to the sampled schools. Furthermore, the allocations to each SHS school, was then proportionally shared between the gender compositions of the SHS 2 students in the designated schools, to obtain the number of gender respondents of each school. All members of the respective sex groups were labeled in a sample frame for each sex group, and their labels written on strips of paper, placed in separate containers for male and female the students respectively. Employing the lottery method of drawing individual members, volunteers were asked to pick one randomly at a time with replacement until the calculated number was attained for each sex. Students whose IDs or labels were picked were involved in the study. This sampling procedure was deemed appropriate because it ensured an equivalent representation of gender in the sample and a fair representation of each of the sex groups in the schools.

Research Instruments

Two separate sets of data collection instruments were adapted to gather data for the study. These included the Test Anxiety Scale (TAS), developed by Sarason in 1980, which measures test anxiety levels before, during and after tests; and the Study Skills Inventory (SSI), developed by Congos in 2010 to assess students' study skills. There are three sections of the questionnaire used to gather the data: A, B, and C. The respondents' demographic data was captured under Section Aon the instrument. Examination anxiety and study skills were measured by the items in Sections B and C, respectively. There were 75 closed-ended items on the instrument.

The Study Skills Inventory (SSI) instrument was created by Congos (2010), was initially intended to assess college students' study abilities. It is a 51-item self-report measure with six domains/subscales, including time management, note-taking, memory, test preparation, and textbook reading. The SSI was adapted and the varying number of items under each subscale or domain was reduced to six to suit the research objectives, and to meet the cognitive level of SHS

students. Also, in order not to overburden the respondents who were SHS 2 students, the 51 items were reduced to 36 items which were related to the research questions. The reactions of the respondents were evaluated on a five-point scale, i.e Never = 0, almost never = 1, Rarely = 2, Sometimes = 3, Often = 4 and Always = 5. The overall score for study skills is the sum of all the subscales. Previous research had provided acceptable reliability coefficients with Cronbach's alpha coefficient reporting 0.89, for the pre-test's reliability (Numan&Hasan, 2017; Kwakye et al., 2020). The subscales' reliability coefficients were Reading of textbooks,0.71, Taking notes,0.68, Memory, 0.70, Preparing for tests, 0.75, Concentration, 0.74, and Time management, 0.77.

The Sarason (1980) Test Anxiety Scale (TAS) is a self-report psychometric measure intended to evaluate a person's psychological health and physiological conditions before, during, and after a test or examination. There are 36 "True" or "False" options on the scale. By checking the appropriate box, respondents say if the statement regarding how they feel during an exam or test is "True" or "False" about them. This scale, which is based on a self-report methodology, assesses a student's mental and physical health before, during, and after a test. The total number of "True" checks is added together to determine the TAS score, and the total score the respondents achieved reveals their test anxiety level. The cutoff points are as follows, with scores ranging from 0 to 36. According to Lashkari (2006), a score of 12 or less indicates minimal test anxiety, a score of 13 to 20 indicates moderate anxiety, and a score of over 20 indicates severe anxiety. The adequate reliability and validity of the modified TAS questionnaire had been published in earlier research, and the pretest's reliability was assessed using Cronbach's alpha (0.70) (Hatami, 2010; Bello, Jegede, and Bello, 2023; King, Cai and Elliot, 2023).

Administration of the Questionnaire

Copies of the questionnaire were distributed to respondents in the five schools with the assistance of research assistants. Once consent was obtained; the respondents were encouraged to complete the surveys with the shortest period. The students were informed that at any moment, they could cease to answer all the questions in the questionnaire without being exposed to consequences. Specific instructions for the completion of the questionnaire have also been provided to respondents. The questionnaires were distributed and collected shortly since they were completed in groups in each school.

Students' average scores over examinations administered over the course of two semesters were used as their academic performance in four core subjects: Mathematics, English Language, Integrated Science, and Social Studies. The scores of the first and second semesters for each respondent were obtained from the head of the academic unit in each school and the mean score computed as the dependent variable for the study.

Data Analysis

All of the data gathered was organized based on the research questions formulated to test the hypotheses and answer the research questions. Therefore, with an alpha level of 0.05 and a confidence range of 95%, the data were submitted to statistical testing and analysis utilising correlation, independent sample t-test and regression analysis. The independent variables comprised study skill dimensions and the dependent or criterion variable was the academic performance of

SHS students in the Tamale metropolis. The study skill dimensions considered in the study are Concentration, Managing Time, Taking Notes, Reading Textbooks, Memorisation and Preparing for a Test.

3. RESULTS

Research Hypothesis One

To test hypothesis one which claimed that "H_{01}: S*tudy skill dimensions and SHS students' academic performance are not significantly related in the Tamale Metropolitan area,"* correlation analysis was used. The correlation matrix between the study skill dimensions and academic performance using Pearson Product Moment correlation are contained in Table1(Concentration, Managing Time, Taking Notes, Reading Textbooks, Memorisation and Preparing for Tests).

Table 1.Correlation Matrix of the study skills dimensions and academic performance measures.

Measures	1	2	3	4	5	6	7
1. Academic performance	-						
2. Concentration	.572**	-					
3. Managing Time	.615*	.473**	-				
4. Taking Notes	.431**	.536**	.637*	-			
5. Reading Textbooks	.684*	.690*	.577**	.653*	-		
6. Memorisation	.431**	.452**	.469**	.408**	.488**	-	
7. Preparing for Tests	.635*	.547**	.513**	.622**	.568*	.614*	-

Correlation is significant at the two-tailed.05 level　　　　　　　　　　　　　　　　*N=354*

Correlation is significant at the two-tailed.01 level

In Table 1, all correlations between paired study skills components and SHS students' performance in the Tamale metropolis are presented. All correlation coefficients obtained for the dimensions were positive, ranging from low to moderately high coefficients (0.431to0.690). Reading textbooks paired with concentration had the highest positive coefficient of r =0.690 (p < .05). This was followed closely by the pair "Reading textbooks and academic performance, reporting a positive coefficient, r= 0.684, and then, the pair, "Preparing for Tests" and academic performance with an r = 0.635, p < 0.05. The correlation between 'Managing time' and academic performance was also significant and moderately high at r = 0.615 at p <0.05. Generally, the results revealed significant positive relationships with varying degrees of strength between the pairs with students' academic performance as indicated in Table 1. While the pair, 'Reading textbooks' and Concentration reported the highest coefficient of 0.690, it was closely followed by the pair, 'Reading textbooks' and 'academic performance' which produced the next moderately strong positive correlation coefficient, of 0.684, with 'Taking notes' paired with' academic performance' producing the lowest coefficient (r = .403, p < .01. It is obvious from Table 1 that all pairs showed positive and significant correlations, and therefore, hypothesis one above was rejected. It was then concluded that, all dimensions under the study skills had positive significant but varying degrees of correlation coefficients with SHS students' academic performance in the Tamale Metropolis.

Research Hypothesis Two

The second hypothesis which claimed that, 'H_{02}: *Study skills do not significantly predict the academic performance of SHS students in the Tamale metropolis"*, sought to test whether the various study skills dimensions can predict the SHS students' academic performance. The predictor variables (all the study skills dimensions) and the dependent variable (academic performance) were subjected to standard multiple regression analysis to ascertain their predictive effects as presented in Table2.

Table 2. Multiple Regression Analysis of Study Skill Components as Academic Success Predictors.

Variables			Beta df	F R2	AdjustedR^2	Sig.
1, 353	105.638	.283	.277			
Concentration			.522			.000
Managing Time			.564			.000
Taking Notes			.437			.000
Reading Textbooks			.551			.000
Memorisation			.413			.000
Preparing for Tests			.546			.000

Independent variables*: Concentration, Managing Time, Taking Notes, Reading Textbooks, Memorisation and Preparing for Tests.*

Dependent variable*: Academic Performance*

All measures were at a 0.01 level of significance.

Results in Table 2indicate that all predictor variables (the study skills dimensions) significantly predicted the academic performance of SHS students in the Tamale Metropolitan area. The regression coefficients revealed that, of all the predictor variables (of study skills), time management made the largest unique and significant contribution or prediction (β = .564, p < .001). This was closely followed by textbook reading practices (β = .551, p < .01), preparing for tests (β = .546, p < .01), concentration on classroom activities (β = .522, p < .01), writing of notes (β = .437, p < .01) and students' memorisation (β = .413, p < .01).Additionally, results from the model summary showed that the overall regression model was significant, (R^2= .283, F(1,353) =105.638, p< .01). Also, it was revealed that 27.7% of disparities in academic performance could be attributed to the students engaging in effective study skills. The hypothesis two was thus, rejected. This outcome implies that there was a positive significant impact of study skills on the student's academic performance. It can thus be concluded that, study skills had significant predictive influence on SHS students' academic performance in the Tamale Metropolis. The results further signify that, an increase in the scores of study skills also resulted in an increase in the academic performance of SHS students in the Tamale metropolis and vice versa.

Research Hypothesis Three

Hypothesis three stated that 'H_{03}: *there is no significant correlation between test anxiety and academic performance of SHS students in the Tamale metropolis*. The test anxiety scores were

correlated with the mean scores of students' termly scores in the core subjects as contained in Table 3.

Table 3. Correlation between Test Anxiety and Academic Performance

Measures	1	2	Sig.
1. Academic Performance	-	-.643	
2.Test Anxiety	-.643	-	.038

*Correlation significant at .05 level (2-tailed)*N =354

Results presented in Table 3 demonstrate a negative relationship between test anxiety and academic performance. A moderately strong negative but significant relationship between test anxiety and academic performance of SHS students in the Tamale metropolis, r (df =354) = -643, Sig. =.038, p<.05). The hypothesis was rejected since the p-value (0.038<0.05). It can thus be concluded based on the results that, there was a significant but inverse relationship between students' test anxiety and their academic performance. The relationship is such that, whenever students' test anxiety increases, their academic performance greatly drops, and vice versa.

Research Hypothesis Four

Hypothesis four claimed that, "H$_{04}$: '*there is no statistically significant difference in the academic performance of male and female SHS students in the Tamale Metropolis'.* An independent t-test that was deemed suitable for the analysis was used to examine the mean differences between the male and female students' academic performance in the Tamale Metropolis. Table 4.

Table 4: Mean Scores of Male and Female SHS Students in Tamale Metropolis

Variable Group N	Mean	SDt – value	df	Sig.(2-tailed.)		
Academic						
Performance Male	169	51.01	10.103	1 .247	352	.213
Female	185	55.36	10.789			

Source: Field Data, 2023   N = 354

Table4 shows that, male students obtained (M= 51.01, SD= 10.389) and female students (M= 55.36, SD= 10.103) with t(352)= 1.247, p = .213 (2-tailed) > 0.05 level of significance. The hypothesis was not rejected. The results therefore, indicated no statistically significant difference between the academic performance of male and female SHS students in the Tamale metropolis. This suggests that, the academic performance of the male SHS students in the Tamale metropolis was similar to their female counterparts. On the average, both sexes had similar performance across the four core subjects offered at the SHS level.

Research Hypothesis five

Hypothesis 5 states that; H$_{05:}$'*there is no significant difference in the application of study skills dimensions by male and female SHS students in the Tamale Metropolis'.* This claim was to test and

ascertain whether male and female SHS students in the Tamale metropolis applied diverse study skills in their studies. An independent sample t-test was applied to determine whether there were any appreciable differences in the mean scores of male and female study skills. Table 5 displays the results on these variables.

Table 5: Comparism of Male and Female SHS Students' Mean Study Skill Scores in the Tamale Metropolis

Variable	Gender	M	SD	t-value	p
Concentration	Male	3.63	0.65	2.174	.062
	Female	3.62	0.68		
Managing time	Male	3.22	0.51	3.465	.030
	Female	3.45	0.58		
Taking notes	Male	3.64	0.67	2.827	.042
	Female	3.88	0.65		
Reading textbooks	Male	4.63	1.09	4.061	.019
	Female	4.97	1.14		
Memorisation	Male	2.75	0.53	3.228	.054
	Female	2.79	0.51		
Preparing for tests	Male	3.77	0.84	4.529	.028
	Female	3.85	0.89		

Significant at the 0.05 level (2-tailed)   N = 354

In Table 5, it can be observed that, the results of an independent sample t-test revealed significant differences between male and female SHS students' application of components of the study skills, namely; Reading textbooks, Taking notes, Managing time, Preparing for tests and Concentration. With higher mean values generally attained by female students under the dimensions - Reading textbooks (M= 4.97, SD= 1.14), Taking notes (M= 3.88, SD= 0.65), Managing time (M= 3.45, SD= 0.58) and, Preparing for tests (M= 3.85, SD= 0.89), it can be concluded that female SHS students in the Tamale metropolitan area employed more efficient study techniques than their male counterparts. The study however, revealed that there were no significant differences in the way both males and females applied the dimensions of under the study skills. This suggests that when it comes to students' attentiveness in class and commitment of concepts to memory, both genders did not differ much.

Research Hypothesis Six

This hypothesis claims that,H_{06}*: There is no significant difference in the test anxiety of male and female SHS students in the Tamale Metropolis".* Data were obtained on test anxiety scores for male and female SHS students in the Tamale metropolitan to test the hypothesis and the results displayed in Table 6.

Table 6: Comparism of Mean Test Anxiety Scores of Male and Female SHS Students in the Tamale Metropolis

Variable Group	N	Mean	SDt	df	Sig. (2-tailed.)		
Test Anxiety	Male	169	24.24	7.132	.267	352	.789
	Female	185	24.04	6.898			

Source: Field Data, 2023   N = 354

The results show that male and female SHS students in the Tamale metropolis do not exhibit significant different levels of test anxiety. This indicates that there is no significant difference between the group mean test anxiety scores of the male (M = 24.24, SD = 7.132) and female students (M = 24.04, SD = 6. 898), with t (352) =.267, p =.789 (2-tailed), at 0.05 level of significance. The hypothesis was thus maintained or failed to be rejected. It was then concluded that, based on the sample used for the study, there was no significant difference in the experiences of test anxiety between male and female SHS students in the Tamale Metropolis.

4. DISCUSSION
Relationship between Study Skills and Academic Performance
Results obtained clearly demonstrated a strong relationship between all study skills components and SHS students' academic performance in the Tamale Metropolis. It was found that, the component,' Reading of textbooks 'recorded the highest correlation coefficient among the study skill dimensions that positively and significantly related to academic performance. This coefficient was closely followed by 'preparing for tests' and 'managing time', suggesting that most SHS students engaged in the reading of their textbooks and effectively managed their study times, while they prepared towards all forms of examinations leading to improved performance. The results further revealed that, the relationships among students' concentration, writing of notes and academic performance were moderately significant. These positive coefficients suggested that, when students pay attention in class and write notes, they moderately enhance their performance. Furthermore, the component with lowest coefficient was memorisation, which suggested that, SHS students who rely on memorisation are likely to earn low academic performance. It further suggested that students who studied by committing subject matter to memory were likely to be associated with low academic performance.

The results of this study collaborate with findings of Crede and Kuncel (2008); Mendezabal (2013); Bright and Matilda (2018), Sandhu (2014),Numan and Hassan (2017) analysis of the connection between study skills and academic performance of secondary school students. The research showed a significant link between effective study practises and academic success. The study of Fazal (2012) identified different study techniques used by students and evaluated which aspect of study habits was more closely related to academic success, and supporting these findings. Fazal's study found that, Time management abilities, reading comprehension, and note-taking abilities were significantly correlated with academic achievement and thus support the findings of this study. Fazal came to the conclusion that students with higher academic success used a wider variety of study skills than those with lower academic success, just as illustrate in this study

The findings showed that study skills dimensions had significant positive effect on SHS students' academic performance, reporting that these study skills are moderate predictors of academic performance. The findings of this study are supported by those of Ayodele and Adebiyi (2013),Tus (2020),Cerna and Pavliushchenko (2015),Evans & Julius (2015), Marc (2011),Raiz (2002),Nuthana and Yenagi (2009), Lawrence (2014), who observed that good study skills are essential for a successful academic career. They also held that, they lead to good grades, which in turn facilitate admission to better colleges and universities and may even result in a scholarship. They further, argued that developing effective study skills is essential for all students because it develops their potential for self-control, self-direction, and ultimately academic success. The key to learning, they held, is to cultivate solid study habits.

The results of the study revealed that a significant relationship exists between the test anxiety experiences and the academic performance of SHS students in the Tamale Metropolis. It was concluded from the results that there is an inverse relationship between test anxiety and students' academic performance.The findings showed that test anxiety had an unfavorable, substantial impact on students' academic performance. These findings agreed with those of studies by (Hanem 2016; Azim, 2018; Copp & Headley, 202; Major, Scheidt, Godwin, Berger & Chen, 2020; Okobia& Oji, 2021), that looked at the impact of test anxiety levels on academic success among students. Additionally, the studies reported that, there is compelling evidence that test anxiety adversely harms pupils' performance on challenging tasks. These findings had a similar perspective to those of the current investigation. Furthermore, the results above concurred with Rizwan and Nasir's (2010) study, which examined the relationship between test anxiety and postgraduate students' academic success. They discovered a strong inverse association between students' achievement scores and their test anxiety levels.

Inferring from the results of the study, there was no statistically significant difference between male and female students' academic performance among SHS students in the Tamale metropolis. This shows that male SHS students' academic performance was on the same level as that of their female counterparts. These findings agreed with those by Ugoji (2008) which revealed that there is no statistically significant difference between the academic performance of male and female students. Also, the findings of this study correspond with those of Sungur and Tekkaya (2003), and Freeman (2002) who declared that there is no significant difference in the cognitive, affective and psychomotor skills achievement of students in respect to gender. As a result, girls could be encouraged and sensitized into developing positive attitudes towards science. Similarly, Bentil, Esia-Donkoh and Ghanney (2018), findings on JHS students in the Ekumfi District in Ghana agree with the positions that there is no significant difference between male and female students' academic performance in Tamale Metropolis.

However, on gender, other studies revealed otherwise, for instance, Ceballo et al. (2004), showed that a student's gender significantly influences their academic achievement, with females performing higher in the areas of Mathematics and English as well as overall performance. According to these authors, girls often put more effort into their studies, which results in higher scores. In the same vein, a gender disparity in achievement has been discovered, with girls outperforming males in some circumstances (Chambers & Schreiber, 2004).The findings of the

study revealed statistically significant variations in the study skills of male and female SHS students. This implies that female SHS students in the Tamale metropolitan area employed effective study methods to boost their academic performance in comparison to male students.

The findings agreed with previous studies which have also reported that female students do better than their male counterparts regarding their study skills (Ossia, 2012; Ergene, 2011, Udeani,2012; Fazal et al., 2012). Khurshid et al. (2012), reported that women have superior study habits because they employ the right strategies to prepare for tests examinations, utilize their time more effectively. Likewise, Ayesha and Khurshid (2013), found that female students generally had superior study skills to those of male students. Findings, women performed better than men in the subsection of concentration. Also, females tend to spend more time studying, engaging in class, and attending classes more frequently (Ergene, 2011). Girls are more focused on succeeding academically in this regard. Amatobi (2013), also highlighted the Trends in International Mathematics and Science Study (TIMSS-2003), which discovered differences in how boys and girls evaluated academic work. Ross (2002) asserts that "heavy readers" are more likely to be female than male, younger than older, and more educated than the overall population. In agreement with Salami (2015)'s findings, on the effect of gender on study skills, females are typically more ethical in situations like regularly attending lectures, asking for academic assistance, sticking to a schedule, and taking notes in order to avoid the consequences of behaviours like cheating during examinations. However, in contrast to these findings, Somuah et al. (2014) found no statistically significant variations in the study skills applied between male and female students. While male students often consult more frequently, more female students avoided joining study groups.

The results showed no discernible difference in test anxiety scores between male and female SHS students in the Tamale metropolis. This implies that test anxiety levels were comparable for both male and female students. This position disagrees with that of Lawrence (2014), who found that there was a significant difference in the test anxiety of high school boys and girls. These results are however, consistent with what Thomas et al. (2023), and Getachew (2015) which found no discernible differences between male and female students' test anxiety. In contrast to the findings of the present study, Lowe (2015), also found that female students fared better than their male counterparts in a study of two test anxiety measures for middle, high school, and college students. Similarly, Farooqi et al. (2012), found that female students have significantly higher levels of test anxiety. This finding suggests that the different social roles assigned to males and females, as well as the higher emotional vulnerabilities of females who have learned to express their emotions socially throughout ontogenesis as opposed to males who suppress them, may be responsible for these differences in social roles. Men and women react to anxiety in various ways, according to study results by King et al., (2000), and women frequently self-report higher levels of test anxiety symptoms than men. As a result, it is critical to include gender when analyzing the results of measures of self-reported test anxiety. Furthermore, it seems from the study that there are gender differences in both the degree of anxiety experienced and the degree to which it impairs test performance, with females appearing to be more affected by the phenomena.

KEY FINDINGS

1. It was found that, all dimensions under the study skills had positive significant but varying degrees of correlation coefficients with SHS students' academic performance in the Tamale Metropolis.

2. Again, the study revealed that, study skill dimensions had significant predictive influence on SHS students' academic performance in the Tamale Metropolis, with "time management" dimension accounting for the highest percentage of over 56% (β = .564, p < .001) of SHS students' academic performance in the Tamale metropolis. These results implied that, an increase in the scores of study skills dimensions, particularly the students' time management was likely to result in an increase in the academic performance of SHS students in the Tamale metropolis and vice versa.

3. The study also found that, there was a significant but negative correlation coefficient reported between students' test anxiety and their academic performance. The inverse relationship implied that, whenever students' test anxiety increased, their academic performance greatly dropped, and vice versa.

4. The study found no statistically significant difference between the academic performance of male and female SHS students in the Tamale metropolis. This suggests that, the academic performance of male SHS students in the Tamale metropolis was similar to that of their female counterparts.

5. The study further revealed that there were no significant differences in the way both males and females applied the dimensions of the study skills. This suggests that when it comes to the application of the study skills dimensions by SHS students in the Tamale Metropolis, both genders did not differ much.

6. It was also found that, based on the sample used for the study, there was no significant difference in the experiences of test anxiety between male and female SHS students in the Tamale Metropolis. Both male and female SHS students suffered test anxiety at different points in their lives and that no particular gender was discovered to experience it more than its counterpart.

5. CONCLUSIONS

This study following from the findings concluded that both males and females in Senior High Schools within the Tamale Metropolis can improve their academic performance if they apply and adhere religiously to the dimensions under the study skills. It can further be inferred that students who manage their studies time well are more likely to improve their academic performance within the Tamale metropolis. There was a significant but negative relationship reported between students' test anxiety and their academic performance, and so if measures are put in place by the relevant school authority to curb or minimise test anxiety in our schools, students' academic performance will likely be improved. Both male and female students should be encouraged to adhere to practical measures put in place by authorities to adopt these study skill dimensions that were found to have strong positive predictive relationship with academic performance for both sexes. Adequate application of these study skills should result in a marked improvement of not only the students' academic performance, but also result in reducing the high rates in the test anxiety levels experienced by both male and female students at the SHS in the Tamale metropolis.

6. RECOMMENDATIONS

Following the conclusions arrived at in light of the findings of this study; some recommendations were made to relevant authorities which when implemented should result in marked improvements in SHS students' academic performance in the Tamale Metropolis.

1. It is recommended that school authorities in collaboration with the school Guidance departments at the SHS, should make conscious efforts to assist students organise and adopt study skills that can help promote their academic performance throughout their stay in school. Parents and teachers (instructors) should be encouraged to take active interest and monitor their wards' performance so that remedial actions can be taken when the need arises relative to a student's academic performance.

2. It is also recommended that school authorities create and employ more friendly coping mechanisms for students to reduce or completely eliminate test anxiety and its detrimental effects on SHS students' academic performance. Students should be given more opportunities through continuous assessments to demonstrate their understandings of concepts taught instead of relying more on the end of term examinations which normally come with tensions. Assessment of students' performance at the SHS must not just be through examinations, but also through variety of assessment procedures.

3. Since no significant differences were found between male and female academic performance at the SHS, it is recommended that, the school authorities together with other stakeholders provide adequate resources in the schools to enhance learning by both sexes without any discrimination or focusing on one particular group. Any measure or intervention that is intended in making learning easy and affordable must be made available without preference to any particular group.

4. Furthermore, it is recommended that, the school library be sufficiently equipped with relevant resources to help students access them to improve their study skills. In addition, SHS students in the Tamale Metropolis and elsewhere, must be offered regular counselling sessions to learn to practice study skills that will inure to their improved academic success.

5. It is recommended that, regular orientations be organised for both invigilators and students prior to the onset of all examinations in order to impose confidence in students and discourage them from getting anxious about exams-related tensions. The school guidance office must identify poor performing students at the beginning of every term or semester to provide academic counselling to enable them adjust and adopt study skills that can work for them to improve their school performance.

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