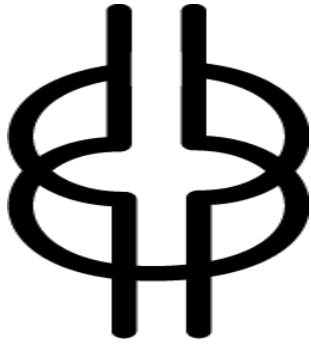
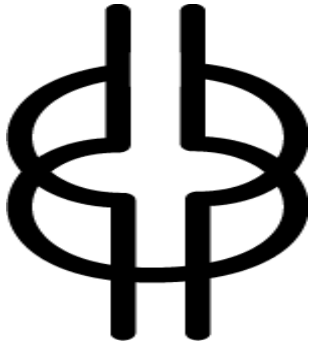
Ghana Journal of Education: Issues and Practice (*GJE*)



NYANSAPO – "Wisdom Knot"

Symbol of wisdom, ingenuity, intelligence and patience

Ghana Journal of Education: Issues and Practice (*GJE*)



NYANSAPO – "Wisdom Knot"

Symbol of wisdom, ingenuity, intelligence and patience

Ghana Journal of Education: Issues and Practice (*GJE*)

ISSN 2579 - 0382

Published By

COLLEGE OF EDUCATION STUDIES, UNIVERSITY OF CAPE COAST, CAPE COAST, GHANA, WEST AFRICA

Ghana Journal of Education: Issues and Practice (*GJE*)

Ghana Journal of Education: Issues and Practice (*GJE*)

VOLUME 10 DECEMBER 2024

Editorial Comment

The Ghana Journal of Education: Issues and Practice (GJE) is a peer-reviewed journal focusing on classroom practice and policy issues that affect teaching and learning. In this volume, researchers and authors have contributed a wealth of high-quality and informative material. This volume contains six articles that have gone through the peer review process at three levels by independent reviewers.

Evans Kofi Hokor and Kwame Bediako Asare investigated factors affecting performance in Ghana's teacher licensure examinations, a key requirement for entering the teaching profession. Using binary logistic regression on data from 507 candidates provided by the Ghana National Teaching Council, they examined the influence of graduation class, gender, and institution type. The authors highlight the need for targeted support for female candidates and those with weaker academic backgrounds. Their findings offer valuable insights for improving licensure outcomes and teacher preparation in Ghana.

Asikhia Olubusayo Aduke examined the impact of study habits on mathematics anxiety among senior secondary school students in Ogun West Senatorial District, Nigeria. Using the Mathematics Anxiety Rating Scale-Revised (MARS-R) and Bakare's Study Habit Inventory (SHI), data were analyzed through ANCOVA and t-tests at a 0.05 significance level. Findings showed no significant difference in anxiety levels across low, moderate, and high study habit categories. However, a significant relationship existed between study habits and math anxiety, with students who had high study habits experiencing greater anxiety. The study recommends integrating study habit techniques into the curriculum and encouraging teachers and counselors to support students in developing effective study routines.

Acheaw Owusu, Godwin Kwame Aboagye, and Charles Deodat Otami investigated prospective science teachers' awareness of their critical thinking abilities in a Ghanaian university. Recognizing critical thinking as essential for problem-solving and academic success, the study emphasized the role of teacher education in fostering this skill. Survey results revealed that pre-service science teachers had high awareness of their critical thinking abilities, with no significant gender differences. However, final-year students showed greater awareness than their junior counterparts. The study concludes that exposure to more course units influences awareness levels and recommends that teacher education programmes deliberately nurture critical thinking throughout training.

In the study of commercial sex work in Cape Coast, Ghana, Kwame W. Nkrumah, Joshua Adebisi Omotosho, Stephen Doe Fia, and Koawo A. Edjah examined the reasons individuals enter the sex trade. Using a mixed-methods approach involving 364 participants, they found that socio-economic hardship was the main driver. The study revealed that the trade thrives due to low entry barriers and weak enforcement of laws. The authors recommend that institutions like the Department of Social Welfare and the Cape Coast Metropolitan Assembly implement targeted interventions and education to help curb the practice.

In their study, Yvonne Ododo Osunde and Elizabeth O. Egbochuku examined the relationship between personality types and learning outcomes among senior secondary school students in Edo State, Nigeria. Using a survey of 117 students and 16 teachers, and analyzing data through multiple regression, they explored how the Big Five personality traits predicted cognitive, affective, and psychomotor outcomes. The results showed that openness, extraversion, and introversion positively influenced cognitive and affective outcomes, while conscientiousness and agreeableness had negative associations with cognitive outcomes. The authors recommend integrating personality-based interventions into educational planning to enhance student learning.

Justice Ray Achoanya Ayam explored corporate governance practices in Ghana's senior high schools (SHSs), focusing on transparency, accountability, and efficiency. Using a qualitative approach involving document reviews and interviews with school leaders and education officials across three regions, the study identified major challenges such as outdated policies, unclear board roles, weak disclosure, and low stakeholder engagement. Ayam recommends strengthening governance frameworks, encouraging participatory practices, and building institutional capacity. The study contributes to ongoing discussions on education governance reform and highlights the need for stronger structures to ensure effective school management.

The editorial team is grateful to all reviewers for the useful feedback they offered on the papers they reviewed and the professionalism they exhibited through the review process. To the Provost of the College of Education Studies, University of Cape Coast, the team would like to say a big thank you for the continual financial and logistical support which has made the publication of GJE possible.

Ghana Journal of Education: Issues and Practices (GJE)
Vol. 10, December 2024, pp. 1 - 24, https://doi.org/10.47963/gje101861

Critical Elements in Teacher Candidates' Success in Teacher Licensure examinations: Some Insights from Ghana

Evans Kofi Hokor [1] & Kwame Bediako Asare[2*]

1. St.Teresa's College of Education, Hohoe, Ghana
2. Institute of Education, University of Cape Coast, Ghana

*Corresponding author's email address: kbasare@ucc.edu.gh

Abstract
Teacher licensure examinations serve as a crucial gateway to the teaching profession, yet the factors influencing success in these exams remain underexplored in the Ghanaian context. This study investigated the impact of graduation class, gender, and institution type on teacher licensure examination outcomes using binary logistic regression analysis on secondary data from Ghana National Teaching Council on 507 randomly selected teacher candidates. The findings revealed that both graduation class and gender significantly predicted examination success, with lower graduation class obtained increasing the likelihood of failure and male candidates outperforming their female counterparts. However, the type of institution where candidates received their training did not significantly influence pass rates. These findings highlight the need for targeted interventions to support at-risk candidates, particularly those with weaker academic backgrounds and female candidates. The study contributes to the growing body of research on teacher licensure and provides insights for policymakers and teacher education institutions seeking to enhance teacher preparation and licensure outcomes in Ghana.

Keywords: Education; examinations; teacher education; teacher educators; teacher licensure; Ghana

Background to the study

Teacher quality remains the most crucial factor in delivering quality education (Putman & Walsh, 2021) because of the important role teachers' play in students' mastery of concepts. Many stakeholders in education are concerned with the calibre of teachers at basic or elementary schools because they serve as a foundation for students' further education and acquisition of relevant skills for the world of

work. Teacher licenses have become important means by which authorities determine that potential teachers possess at least the minimum requirements for teaching (National Teaching Council, 2022). The Teacher Licensure Examination is a standardised test that individuals must pass in order to become certified teachers in many countries.

The journey to becoming a licensed teacher is pivotal. Many factors contribute to aspiring educators' performance and success in the examination. This observation leads to a fundamental question: What factors influence the success of teacher candidates in Ghana's teacher licensure exam? To answer this question and shed light on some elements that affect Ghana Teacher Licensure Examination (GTLE) outcomes, our research delved into how the interplay of graduation class, gender, and the institution type impact teacher candidates' success. These factors have long been of interest to educators and policymakers alike as they offer crucial insights into the dynamics of teacher preparation and the future of the education profession (Smith et al., 2022).

Teacher Education and Licensing

Academic quality, perseverance, and dedication are prerequisites for obtaining a teaching license (Santagata & Sandholtz, 2019). Teachers need to be well-versed in their subject matter, stay updated on educational trends, and continuously seek ways to enhance their teaching methods. This commitment ensures that they can effectively convey complex concepts in meaningful ways that inspire learning. Perseverance is critical for long-term success and effectiveness in the classroom. Dedication is crucial for building meaningful connections with students and creating an environment conducive to learning. Beyond classroom responsibilities, teachers contribute to the broader educational community by participating in professional development initiatives, collaborating with colleagues, and staying informed about educational policies and innovations (Darling-Hammond, Hyler & Gardner, 2017). Teachers must adapt to various learning styles, address individual student needs, and navigate the evolving landscape of education. These issues contribute to individual teacher success and the overall quality of education provided to students.

Teacher licensing bodies seek to ensure that individuals entering the teaching profession are not only academically qualified but

also possess the personal and professional qualities and characteristics that contribute to effective teaching (Albite, 2019). Teaching license requirements therefore acknowledge the importance of these attributes in shaping effective and impactful educators. Hence, it would not be accurate to assume that individuals who have undergone requisite teacher preparation programmes would necessarily be adequately fledged to teach. For example, Nool and Ladia (2017) found in their study that first-time takers of teacher licensure exams in the Philippines from 2009 to 2016 had a success rate of 54%, while repeated exams takers had 19% pass rate. These observations attest that undergoing a teacher preparation programme is not a guarantee for passing a teacher professional exam. Hence, it is worth examining variables that influence teacher candidates' success in teacher professional exams, as this study sought to do.

The Ghana Teacher License Exams came into force after an amendment of the Education Act of 2008 (Act 778). Act 778 was replaced by the Education Regulatory Bodies Act of 2020 (Act 1023), Section 60b, which called for the establishment of the National Teaching Council to ensure only qualified, licensed teachers enter classrooms for efficient and effective quality lesson delivery (National Teaching Council, 2022). The first Ghana Teacher Licensure Examination (GTLE) was taken in 2018. Since then, the exams have become part of the final stage in the country's quest to determine who teaches in Ghanaian classrooms after pre-service teachers complete their programmes of study.

Many concerns have been expressed about prospective teachers' performance in the licensure exams over the years. These concerns have had to do with teachers' poor performance and the nature of the examination (National Teaching Council, 2022). Therefore, exploring the factors that contribute to their success, and paying attention to them can, hopefully, minimize the failure rate and improve teacher quality. However, since no study has extensively examined the factors contributing to teacher success or failure in the Ghana teacher licensure exams, exploring such an issue now is appropriate. The outcome of the analysis could provide empirical evidence that could inform teacher education policy and preparation in the effort to improve teacher quality for improved learner performance and overall educational outcomes.

Factors Influencing Success in Teacher Licensure Examinations

The performance of education graduates who are potential teachers for high school and primary education in the Philippines Licensure Examination for Teachers (LET) was studied by Antiojo (2017). The purpose of the study was to find out what influences these graduates' performance on the LET, a test that must be taken to be eligible to teach in the country. The study's conclusions showed that the graduates' performance on the LET was significantly influenced by a number of factors, including their academic background, test readiness, and the calibre of their teacher education programme. Policymakers and stakeholders in education can benefit from the study's insightful analysis of the system's strengths and limitations in producing qualified and competent teachers. Despite some research on teacher licensure examination outcomes in the Philippines, there is a notable gap in understanding how graduation class, gender, and institution type influence success rates (Nool & Ladia, 2017). Collins (2002) examined the effect of programmes and grade point average (GPA) on nurses' ability to pass/fail nurses licensure exam and reported weak correlations. Studies suggested that academic performance, often reflected in graduation class or cumulative grade point average (CGPA), is a significant indicator of licensure success (Darling-Hammond et al., 2017). However, this factor was not examined in detail using binary logistics regression to ascertain which graduation class is making significant impact. Clarity on this would help provide targeted intervention to potential teachers.

Several reasons could account for why individuals fail teacher licensure exams. Some of the common reasons include lack of preparation, inadequate study materials, test anxiety, and poor time management skills (Ghasemi et al., 2019). Also, a variety of factors, such as socioeconomic status, parental education, and school-level features, have an impact on these discrepancies. Gender has also historically been a variable of interest known to account for some potential variations in test scores for males and females (Borgonovi et al., 2018). Some studies also examine pre-service teachers' information about the test, prior teaching experience, programme offered, and success in teacher licensure exams to illuminate how these variables affect performance and pass rate (Kalaw, 2017; Akyeampong et al., 2023).

Research suggests that there may be differences in performance between males and females on these exams. In particular, the limited evidence suggests that males tend to perform better in certain subject areas such as mathematics and the sciences, while females may excel in areas such as language, arts and social sciences (Ghasemi et al., 2019). In spite of the dearth of evidence to permit a definitive statement on the place of gender on success rates in teacher licensure exams, gender has been a topic of interest when examining success in teacher licensure exams.

Gender disparities in educational outcomes present mixed findings, with some research suggesting females perform better in certain areas of licensure exams (Ghasemi et al., 2019). Additionally, the type of institution, such as traditional universities versus colleges, may impact exam success, with graduates from more selective institutions often performing better (Amanonce & Maramag, 2020). To this end, the present study examined the possible impact of graduation class, gender, and institution type on passing teacher licensure exams among college and university graduates in Ghana seeking licensure to enter the teaching profession.

Further evidence of gender disparity in test performance can be gleaned from other studies. For example, in their study across 27 countries from North America, Europe, Asia, and Oceania, Borgonov et al. (2018) found that males tend to have higher performance in numeracy than females. But the reverse was true with literacy since the results from the same study by Borgonovi et al. showed that performance in literacy was higher for females than males. Similar evidence was presented by Marks (2008) who investigated the disparities between genders in reading and mathematics proficiency across students in 31 different nations from five continents (South America, North America, Europe, Asia, and Oceania). Marks' study investigated the causes of these discrepancies using data from the Programme for International Student Assessment (PISA). The findings indicated that while boys scored better in mathematics, girls regularly surpassed boys in reading. However, the effect sizes were not reported. Hence, it is difficult to draw a firm conclusion regarding gender disparities in test performance.

Graduation class, often an overlooked variable, holds potential as a key predictor of success in teacher licensure exam (Nool & Ladia, 2017). In other words, whether one obtained First Class Honours,

Second Class (Upper Division), Second Class (Lower Division), Third Class or Pass in a teacher education programme can have a profound impact on teacher licensure exam outcomes. One study in the Philippines found that graduation class and programme offered were significant predictors of success. Candidates who graduated in the top 25% of their class in teacher education programmes had higher pass rates on licensure exams (Kalaw, 2017). However, the effect size was not accounted for.

In addition, D'Agostino and Powers (2009) conducted meta-analysis of 123 studies to assess the predictive validity of teachers' test scores and collegiate grade point averages (GPAs) from preparation programmes in relation to their teaching competence. The findings suggest that, overall, test scores demonstrated only modest correlations with teaching competence, while performance in preparation programmes, as indicated by GPAs, emerged as a significantly superior predictor of teaching skill. Findings from D'Agostino and Powers' study appear to imply that relying on test scores alone may not offer substantial additional information beyond preservice performance in identifying competent teachers. This conclusion underscores the importance of considering broader indicators of teacher preparation and performance for effective evaluation and selection processes to institution type (university or college attended), graduation class and gender.

In terms of specific programmes, available research evidence suggests that teacher preparation programmes that provide opportunities for clinical practice, such as student teaching or internships, may be more effective in preparing students for teacher licensure exams (Darling-Hammond et al., 2017). Additionally, programmes that focus on content knowledge and pedagogy, rather than just one or the other, may be more predictive of teacher success (Cochran-Smith et al., 2021).

In addition to gender, graduation class, and the institution type (university or college a teacher candidate attended) play pivotal roles in shaping an individual's preparedness for teacher licensure exam. As an example, a study by Rothman and McMillan (2003) showed that institution attended accounted for 17% in variation of scores in numeracy and literacy achievement. Further, Kalaw (2017) used quantitative methods to examine teachers trained to teach in primary and high schools' performance in licensure exams. The results of

Kalaw's study portrayed a significant relationship between general teaching knowledge and English literacy. The results served as a foundation for curriculum reforms and professional development programmes in the Philippines.

Also, there is evidence from some studies that predict students who entered particular teacher colleges' ability to pass in various subjects or programmes. Based on research studies, the institution type attended by an individual may play a significant role in determining their performance in teacher licensure exams (Amanonce & Maramag, 2020; Bansiong & Balagtey, 2020). In this regard, teacher licensure exams may not only serve as quality control for teachers teaching at elementary schools, but also provide insights into how various teacher education institutions are preparing teachers-in-training (Albite, 2019).

Institutions that have the same programme may tend to have different topic contents in the curricular for preparing pre-service teachers or thoroughness in coverage may differ. Therefore, it is important to understand how institutions and programmes influence success in teacher licensure exams. This observation is exemplified in a study conducted by Lagcao, Toquero and Tusoy (2023). The results from Lagcao et al.'s study showed that the programme offered by the institution affected the performance of graduates in the licensure examinations for teachers. Also, Lagcao and colleagues found that graduates of Bachelor of Elementary Education (BEED) had a higher passing rate compared to those who took Bachelor of Secondary Education (BSED). By implication, the institution attended and the programme offered may have an impact on the performance of teacher candidates in teacher licensure exams. The establishment of these factors can aid in the choice of an institution and programme to pursue in order to increase the likelihood of success in the licensure exams for teachers.

Additionally, some individuals may struggle with specific subject areas or have difficulty with test-taking strategies (Cochran-Smith et al., 2021). Some recent results from Ghana Teacher Licensure Examination present a worrying tread. For example, Ghana's National Teaching Council (NTC) (2022) report the mean score for the 2022 numeracy paper as 45%, with a standard deviation of 18, which was lower than the 2021 numeracy average score of 52% with a standard deviation of 11. Candidates' performance in all the broad areas assessed appears to be lower than the pass mark of 50%. For example, literacy

score on average in 2022 was 30.62%, while in 2021 the mean score was 27.74%. Similar average score on literacy was reported as 34.05% in 2020. These results generated much public outcry about factors contributing to the failure or success of the Ghana Teacher Licensure Exam. The NTC shared the licensure results with various stakeholders with the aim of discussing and addressing the failure rates. For example, the licensure exams reports are shared with teacher education institutions to inform curriculum contents and programmes, and create awareness about knowledge deficit as well as to educate pre-service teachers about the strengths and weaknesses of candidates (NTC, 2022). While this may go a long way to enhance preparation drives, which would be expected to ultimately translate into success rate, it is not clear which factors contribute more to pass rates and what we could learn from them to address the shortfalls.

The above review appears to suggest that success in teacher licensure exam may be influenced by multifaceted factors such as gender, programme pursued and graduating class. Apparently, teacher preparation drives, individual aptitude, and educational background also influence variations in test performances. Akyeampong et al. (2023) investigated the influence of information about the test, gender, prior teaching experience, and programme of study on Ghanaian pre-service teachers' perceptions of the teacher licensure test. Their findings suggest that demographic factors such as gender, and prior teaching experience significantly impact perceptions of the licensure test, offering valuable insights for policymakers and educators aiming to enhance teacher preparation and certification processes in Ghana. However, the graduation class and institution attended were not considered in the context of Ghana. These variables are important in understanding the graduation class which serve as a measure of knowledge mastery and the influence of institution type in the success of prospective teachers in licensure examination. Understanding this impact is crucial for informing policies aimed at improving teacher preparation and ensuring equitable opportunities for success.

There, however, are dotted studies in other parts of the world that shed light on how these variables influence prospective teachers' performance (D'Agostino & Powers, 2009). This observation underscores the importance of examining the factors that account for teacher candidates' success on Ghana's teacher licensure exams. The dynamics that exist in teacher training institutions vary across

countries. Several factors influence success in passing teacher licensure examination, as documented in the literature, including CGPA, test-taking strategies, and prior academic performance. However, this study focuses specifically on gender, graduation class obtained, and institution attended because these factors are critical in the Ghanaian context, yet their direct impact remains underexplored. The examination of gender, graduation class, and institution type as key variables in this study is grounded in both theoretical and empirical literature, which highlights their significant influence on academic and professional outcomes. Gender differences in academic performance and career trajectories have been widely documented, particularly in fields related to education, where variations in test performance and teaching efficacy are often observed. Graduation class, representing the level of academic achievement, serves as a crucial predictor of future success, as research suggests that higher degree classifications correlate with better cognitive and professional competencies. Additionally, the type of institution attended whether a university or college of education may reflect variations in curriculum quality, resource availability, and pedagogical training, which could influence licensure exam success. Given the significant role these factors play in shaping teacher quality and professional readiness, investigating their influence on licensure exam outcomes is essential for informing policy decisions and improving teacher preparation programs in Ghana.

In this study, we aimed to explore the relationships among these factors and their implications for the future of teacher education and certification. The assumption is that the exploration of these factors would provide insights into the potential predictors of success in the professional examination for aspiring teachers (Santagata & Sandholtz, 2019). The analysis of diverse sample of individuals who have taken these exams could help to identify associations or patterns that may exist. In order to promote greater equity and equality in student accomplishment, the findings, one would expect, would underscore the need for focused interventions and policies to address these gender-based gaps in educational attainment. We anticipate that such a study could provide direction for interventions. Therefore, the following hypotheses guided the present study.

1. H_O: Potential teachers do not differ by university and college attended in the likelihood of passing the Ghana Teacher Licensure Exam.

2. H_O: Male and female potential teachers do not differ significantly on the likelihood of passing the Ghana Teacher Licensure Exam.
3. H_O: Graduation class does not influence the likelihood of passing the Ghana Teacher Licensure Exam.

It was expected that these hypotheses would allow the researchers to test the significance of graduation class, gender, and institution type as predictors of success (passing) in the Teacher Licensure Exam and explore potential impact of these variables. The findings of this study can be used to improve teacher education programmes by identifying areas where improvements can be made. For example, institutions can focus on providing additional support to students who are at risk of failing the licensure exam based on their graduation class. Additionally, institutions can use these findings to develop targeted interventions for students who may need additional support in specific areas to fill teacher quality deficit (Van Namen, 2021).

Theoretical Framework

The study hinged on the Attribution Theory. According to Hersey et al. (2001), the Attribution Theory permits humans to assess the behaviours of others "on the basis of whether we believe it was caused by an internal or an external influence" (p. 74). In other words, the theory permits the assessment of the behaviours of people on the basis of determining the possible influence(s) that caused particular outcomes. Relatedly, Attribution Theory in education research is concerned with the perceived causes of success or failure, which is relevant to studying the factors that predict success or failure in teacher licensure exams (Malle, 2022**)**. For this study, the adoption of Attribution Theory was to help the researchers to explore the influence of graduation class, gender, and institution type on their performance in the licensure exam. This was because understanding how graduation class, gender, and institution type contribute to success or failure in the licensure exam would provide valuable insights into academic performance and teacher education institution choices to increase the chance of success for prospective teachers. Broadly, research in this area could contribute to the development of interventions and support systems that address attribution patterns and enhance teacher candidates' success in teacher licensure exams (Banerjee et al., 2020).

Attribution theory paved the way for research into the interplay between individual dispositions (graduation class) and external circumstances (institution type) in licensure exams (Banerjee et al., 2020). Attribution Theory challenges traditional views that solely emphasize graduation class or institution type as the primary determinants of success in teacher licensure exams. In addition, Attribution Theory permits the consideration of gender when explaining success or failure in teacher licensure exams (Malle, 2022**)**. This approach to understanding probable causes has the potential to contribute to a more nuanced and comprehensive perspective on Ghana's teacher licensure exam.

Method

The study adopted the ex-post facto design of quantitative methodology to examine the independent variables of gender, class obtained in a teacher education programme, and institution type to predict pass/fail on the Ghana Teacher Licensure exams. In using this design, the researchers did not manipulate the independent variables to observe the outcomes on the dependent variable of pass/fail (Cohen, Manion & Morrison, 2018). Instead, the study involved analyses of secondary data from Ghana's National Teaching Council (NTC) – the body in charge of the Ghana Teacher Licensure Exam. The data included information on the graduation class, gender, programme offered, and institution type of teacher candidates who sat for the teacher licensure examination in September, 2023. The raw data showed that the teacher candidates specialized in early grade, primary education, junior high education, and senior high education (NTC, 2023).

In this study, data of 507 teacher candidates randomly selected from a population of 20,182 participants using a simple random sampling technique were analysed. Krejcie and Morgan's (1970) table of sample size and calculator.net's sample size calculator suggested that for a population between 20,000 and 30,000, at 95% confidence level, 5% margin of error and a population proportion of 50%, a sample size of 377, 378 or 379 is the minimum number of necessary samples to meet desired statistical constraints. However, the authors added 200 more to increase the representativeness of the sample to 578. To obtain the 578 sample from the population, each participant was assigned a unique number from 1 to 20,182. A random number generator was then

used to select 578 unique numbers from this range, ensuring that each participant had an equal chance of being chosen. This method was chosen to minimize selection bias and to enhance the representativeness of the sample (Fraenkel, Wallen & Hyun, 2023). The randomness of the selection process ensured that the sample accurately reflected the diversity and characteristics of the population to allow for more reliable and generalizable results (Fraenkel et al., 2023). Yet, 71 of the 578 randomly selected cases did not have all entries populated. The participants with incomplete information were excluded from the analysis. These participants' data did not include their graduation class. The data analysis was thus conducted on 507 teacher candidates' records. Table 1 presents the demographics of the teacher candidates whose records were analysed.

Table 1: Participants' Background Information

Variables/Descriptors		Frequency
Class Obtained	First Class Honors	40
	Second Class (Upper Division)	268
	Second Class (Lower Division)	146
	Third Class	48
	Pass	5
Institution Type	College of Education	460
	University	47
Gender	Male	276
	Female	231
Overall Success	Pass	333
	Fail	174

Table 1 summarizes the raw data and provides an overview of the distribution of the teacher candidate variables in terms of gender, institution type, graduation class and success rates.

Data Analysis

The statistical analysis was conducted using SPSS IBM 26. We used inferential statistics to test the hypotheses to determine the relationships between the independent and dependent variables. Binary logistic regression analysis was used to analyse gender, class obtained, and institution type on the overall pass or fail rates. All the independent variables were measured in categories.

The study predicted the probability of a candidate passing licensure exams as a function of (a) gender (binary variable coded 0 = male, 1 = female; (b) institution type (0 = college, 1 = university) (both gender and institution type were treated as nominal); and (c) class obtained (0 = First Class Honors, 1 = Second Class Upper Division, 2 = Second Class Lower Division, 3 = Third Class, 4 = Pass – treated as ordinal). Therefore, the college, male, and First Class Honours obtained served as the reference for the interpretation of the data.

The dependent variable success in licensure exams is a binary variable coded (0 = failure for not passing, 1= success for passing the licensure exams). Binary logistic regression is appropriate since the dependent variable has only two outcomes – pass/fail (Pallant, 2016).

Results

Binary logistic regression was used to examine whether gender, institution type, and class obtained were associated with the likelihood of passing the Ghana Teacher Licensure exam. The initial analysis revealed that the assumption of multicollinearity was met (tolerance ranges $= .969\ to\ .984$) above the threshold value of 0.1 (Pallant, 2016) with VIF values less than 5 (Hadi, Abdullah & Sentosa, 2016). The Hosmer and Lemeshow Test confirmed that the data fit the model since p-value = .831 is greater than .05. An inspection of standard residual revealed only two values (Std. Residual = 2.99 and 2.98) above the benchmark of z-residual$= 2.5$, which were kept in the data set.

The model was statistically significant, $x^2(6, N = 507) = 152.859, p = .001$, indicating that it could differentiate between those who pass the licensure exams and those who fail the exams. The model explained between 26% (Cox & Snell R Square) and 36% of the variables in the dependent variable and correctly classified (78.3%) cases. Table 2 reveals that gender, class obtained, but not institution type significantly contributed to the model.

Table 2: Binary Logistic Regression Predicting the Likelihood of Passing Teacher Licensure Exam

							95% C.I. for EXP(B)	
	B	S.E.	Wald	Df	Sig.	Exp(B)	Lower	Upper	Upper
Institution Type (1)	-.252	.385	.426	1	.514	.778	.365	1.655	1.655
Gender (1)	-1.121	.227	24.286	1	.000	.326	.209	.509	.509
First Class Honor			86.415	4	.000				
2nd Class Upper (1)	-2.228	1.030	4.676	1	.031	.108	.014	.812	.812
2nd Class Lower (2)	-3.792	1.033	13.474	1	.000	.023	.003	.171	.171
Third Class Division (3)	-5.312	1.093	23.606	1	.000	.005	.001	.042	.042
Pass Class Division (4)	-3.888	1.384	7.893	1	.005	.020	.001	.309	.309
Constant	4.240	1.031	16.911	1	.000	69.422			

The reference categories for the predictor variables were set as follows: for **Gender**, the reference group was **Male**, for **Institution Type**, the reference group was **College**, and for **Class Obtained**, the reference category was **First Class Honors**.

Table 3: Chi-square Result

	Chi-square	Df	Sig.
Step	152.859	6	.000
Block	152.859	6	.000
Model	152.859	6	.000

Table 4: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	499.277[a]	.260	.360

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 5: Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	2.818	6	.831

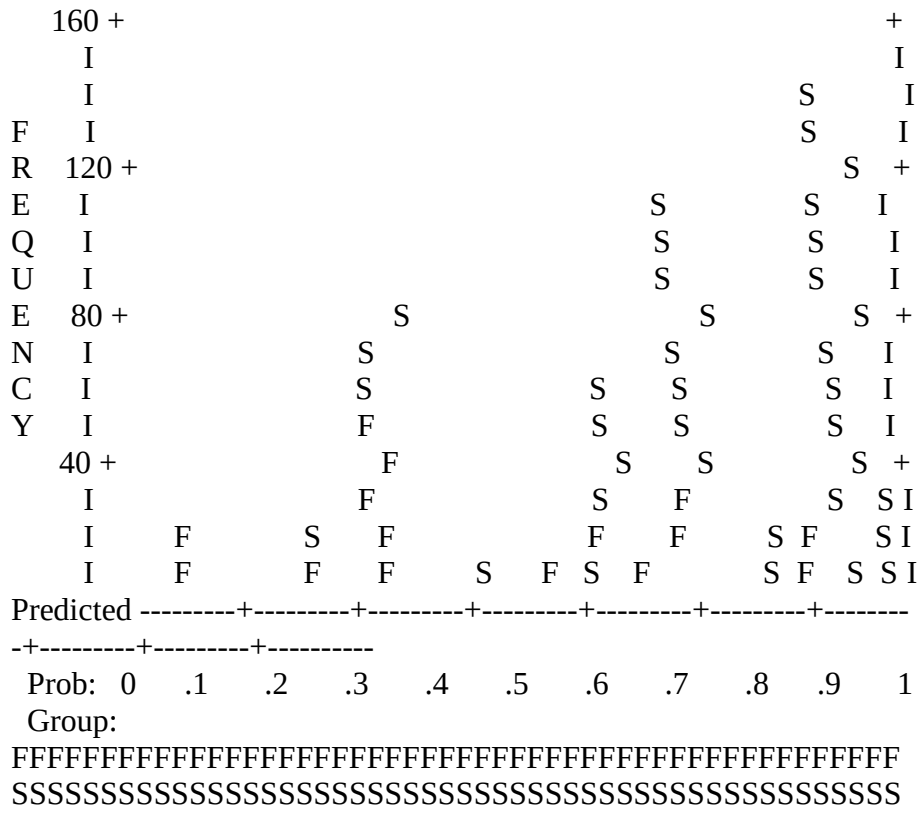
Table 6: Success Rates

Observed		Predicted		
		Success Rates		Percentage
		Failure	Success	Correct
Success Rates	Failure	95	79	54.6
	Success	31	302	90.7
Overall Percentage				78.3

Table 7: Collinearity Statistics

	Tolerance	VIF
Gender	.969	1.032
Institution Type	.980	1.020
Class Obtained	.984	1.016

Figure 1: Observed Groups and Predicted Probabilities



Predicted Probability is of Membership for Success
The Cut Value is .50
Symbols: F - Failure
S - Success
Each Symbol Represents 10 Cases.

Table 2 reveals that gender has a significant impact, with males more likely to pass the GTLE than females. The Significance level of 0.001 indicates that this variable (gender) is highly statistically significant ($p < 0.05$). The odds ratio (Exp(B)) is 0.326, with a 95% confidence interval (C.I.) for Exp(B) ranging from 0.209 to 0.509. This implies that female teacher candidates who sat the exam had significantly less chance of passing the licensure exams as compared to the male teacher candidates who wrote the exam.

The analyses also reveal that the class of degree (graduating class) is a strong predictor of passing the licensure exams, with higher degree classifications (like First Class Honours) associated with greater chances of passing. The logistic regression analysis reveals that candidates with Third Class and Second Class (Lower Division) degrees are significantly more likely to fail the teacher licensure exams compared to those with a First Class Honours degree. The odds ratio for Third Class is 0.005, with a 95% confidence interval ranging from 0.001 to 0.042, indicating a drastic reduction in the likelihood of passing. Similarly, the odds ratio for Second Class (Lower Division) is 0.023, with a 95% C.I. ranging from 0.003 to 0.171, also showing a significant decrease in the likelihood of passing.

The analysis further reveals that candidates who graduated with a Pass degree are significantly more likely to fail the teacher licensure exams compared to those with a First Class Honours degree and Second Class (Upper Division). The odds ratio for Pass Class is 0.020, with a 95% confidence interval ranging from 0.001 to 0.309, indicating a substantial reduction in the likelihood of passing. Along with Third Class and Second Class (Lower Division) degrees, a Pass degree also significantly decreases the chances of passing the licensure exams, underscoring the strong association between lower academic performance and higher failure rates. However, we did not find the Institution type (i.e., college or university attended) to be a significant predictor of passing the Ghana Teacher Licensure Exams (The odds ratio (Exp(B)) = .778, sig. = .514).

Discussion

The study results show that there are gender differences in pass rates among teacher candidates in Ghana's teacher licensure exam. Also, the class teacher candidates obtained from the teacher education institution attended is a strong predictor of successfully passing the teacher licensure exam. However, from the results of this study, the institution teacher candidates attended for their teacher preparation programme was not found to be a significant predictor of passing Ghana's teacher licensure exam.

The strong association between graduation class and success in the teacher licensure exam suggests that academic performance in undergraduate studies plays a crucial role in examination preparedness. First Class Honours graduates likely possess stronger foundational knowledge, advanced critical thinking skills, and better study habits, which enhance their ability to tackle the exam's demands. Additionally, higher-performing students may have greater intrinsic motivation, discipline, and confidence, factors that contribute to effective exam preparation and performance. The rigorous academic training and intellectual engagement required to achieve a top degree classification may also equip these candidates with superior problem-solving abilities and a deeper understanding of pedagogical concepts. These factors collectively may explain why candidates with higher graduation class demonstrate significantly improved odds of passing the teacher licensure exam.

Specifically, the logistic regression analysis indicates that teacher candidates with Second Class (Lower Division), Third Class, and Pass are substantially more likely to fail the exams, as evidenced by their low odds ratios of 0.005 and 0.020, respectively. These results underscore the critical role of academic excellence in teacher preparation programmes. The findings of this study align with existing literature emphasizing the strong relationship between academic performance and success in licensure examinations. The logistic regression results, which indicate significantly lower odds of passing among candidates with lower degree classifications, reinforce the conclusions drawn by Nool and Ladia (2017), who found that teacher education institutions with higher-performing graduates consistently achieve better licensure examination outcomes. Similarly, Collins (2002) established that academic achievement serves as a reliable predictor of licensure success among nursing graduates, underscoring

the broader applicability of this trend across professional fields. These findings suggest that strong academic performance is not only indicative of subject mastery but also a critical determinant of readiness for professional certification. The consistency between this study and prior research highlights the need for teacher preparation programs to implement targeted academic support interventions, particularly for students with lower classifications to enhance their chances of passing licensure exams. This finding appears to suggest that teacher education institutions need to place greater emphasis on supporting students to achieve higher academic standards (Van Namen, 2021). We are of the opinion that enhancing academic support services and implementing targeted interventions for academically weak students could be vital strategies for improving overall licensure exam pass rates.

Regarding Ghana's teacher licensure exam, the study results have shown that the type of institution attended by teacher candidates does not appear to be a significant predictor of success in the teacher licensure exams. This finding seems to imply a sense of parity in the quality of education provided across different universities and colleges running teacher education programmes in Ghana. This sense of parity is relevant and appears to suggest that course content and scope of coverage between teacher universities and colleges align with the focus to merge "the different standards being used in institutions offering initial teacher training and … continuing professional development into a national standard to ensure that the development of student-teachers is guided by the same set of standards" (National Teaching Council, 2017, p.8). As such, it would be important for efforts to improve teacher education and the quality of education to focus not so much on institutional differences but more importantly on what must be done to improve the academic performance of student-teachers. By implication, educational policies and resources should be directed towards enhancing curriculum standards, teaching methodologies, and student support systems across teacher education institutions, towards assuring that prospective teachers, regardless of their alma mater, have an equitable opportunity to successfully pass the licensure exams (Van Namen, 2021).

The finding that a significant difference exists between male and female teacher candidates in their likelihood of passing the teacher licensure exams in Ghana suggests that several factors may be influencing this disparity. One possible explanation is differences in

academic preparedness and prior educational experiences, as research has shown that gender disparities in performance can stem from variations in access to quality education, learning resources, and mentorship opportunities (Marks, 2008). Additionally, societal expectations and cultural norms regarding gender roles in education may contribute to differences in confidence levels and test-taking strategies between male and female candidates (Borgonovi et al., 2018). Another potential factor could be variations in study habits and test anxiety, as some studies indicate that female candidates may experience higher levels of exam-related stress, which could impact their performance. Furthermore, institutional and systemic factors, such as biases in assessment methods or disparities in support structures within teacher training programmes, might also play a role in shaping these outcomes (Borgonov et al., 2018). This recognition would require that teacher education programmes must focus on providing an inclusive and supportive environment that caters to the needs of all student-teachers with a particular focus on addressing issues hampering the academic performance of female students (Marks, 2008). Expectedly, this will ensure that both male and female teacher candidates receive the same level of preparation and support, fostering a diverse and competent teaching workforce.

Moreover, ongoing efforts to promote gender equality in education should continue to be a priority to ensure that all candidates are equally equipped to achieve professional success (Putman & Walsh, 2021). The impact of gender on teacher licensure exam outcomes should be considered within a broader context that includes other variables such as graduation class (Marks, 2008). Further research is needed to gain a more comprehensive understanding of how gender influences success in teacher licensure exams and to explore the underlying factors that contribute to any observed differences.

Conclusion

The findings of this study underscore the critical role that graduation class and gender play in determining success in Ghana's teacher licensure examination. The significant predictive power of graduation class suggests that students who graduate with lower academic performance are at a heightened risk of failing the exam, emphasizing the need for targeted academic support and remediation strategies during teacher training. Additionally, the observed gender disparity, where male candidates tend to outperform their female

counterparts, calls for further investigation into the underlying factors contributing to this trend. These may include differences in academic preparation, test-taking strategies, or broader socio-cultural influences that shape educational experiences and outcomes. Interestingly, the type of institution where pre-service teachers receive their training did not significantly influence licensure exam success. This finding implies that teacher education programmes across different institutions may be providing comparable levels of preparation for the exam. However, future research could explore whether qualitative differences in instructional strategies, resources, or institutional policies contribute to individual performance variations. These insights highlight the need for policymakers and teacher education institutions to develop targeted interventions that support at-risk candidates and promote equity in teacher licensure outcomes.

Recommendations

The findings from the current study have implications for teacher education policy and practice in Ghana. Therefore, we recommend that teacher education institutions focus on improving the quality of their programmes and teaching including providing more academic support to female student-teachers and pre-service teachers who struggle with their academic work (Antiojo, 2017). It is also important for the Ghana government through the Ministry of Education, Ghana Tertiary Education Commission, Ghana Education Service and teacher unions, among other stakeholders, to resource teacher education institutions to enable them to enrich teaching and provide required and effective support systems to improve student learning.

In terms of interventions to improve performance on the teacher licensure exam, one approach is to provide targeted test preparation resources such as review classes, practice exams, and study materials particularly for those who graduated with weak graduating classes as they have lesser chance of passing the teacher licensure exam. Another strategy is to offer coaching or mentoring to help teacher candidates with weak graduating classes to develop effective study strategies for improved performance. Additionally, teacher education institutions can work to improve the quality of delivering their teacher education programmes (e.g., through multiple formative means of assessment to identifying and supporting academically weak students) to better

prepare graduates for the licensure exam (Darling-Hammond et al, 2017).

We recommend exploring additional factor(s) to achieve a comprehensive understanding of the collective factors influencing the license exams. Therefore, future research should consider how specific programmes offered by teacher candidates influence their preparedness to pass teacher licensure exams in Ghana.

References

Akyeampong, K., Adu-Yeboah, C., Kwaah, C. Y., Avornyo, E. A., Amuah, E., & Koomson, A. (2023). Selected demographic variables of predictors of Ghana preservice teachers' perceptions of the teacher licencure test. *Journal of Educational Managemen*t, 13(1), 1-12. https://doi:10.47963/jem.v13i.1325

Amanonce, J. T., & Maramag, A. M. (2020). Licensure examination performance and academic achievement of teacher education graduates. *International Journal of Evaluation and Research in Education (IJERE)*, *9*(3), 510-516. https://DOI:10.11591/ijere.v9i3.20614

Antiojo, L. P. (2017). Performance of education graduates in the licensure examination for teachers (LET). *PEOPLE: International Journal of Social Sciences, 3*(2), 1363-1384. https://dx.doi.org/10.20319/pijss.2017.32.13631384

Albite, R. P. (2019). A case study of topnotchers' preparations and contributory attributes in passing the licensure examination for teachers. *Southeastern Philippines Journal of Research and Development*, *24*(2), 19-34. https://DOI:10.53899/spjrd.v24i2.19

Arhin, J., & Hokor, E. K. (2021). Analysis of high school students' errors in solving trigonometry problems. *Journal of Mathematics and Science Teacher*, *1*(1), em003. https://doi.org/10.29333/mathsciteacher/11076

Banerjee, D., Gidwani, C., & Sathyanarayana Rao, T. S. (2020). The role of "attributions" in social psychology and their relevance in psychosocial health: A narrative review. *Indian Journal of Social Psychiatry*, *36*(4). 277-283.

Bansiong, A. J., & Balagtey, J. L. M. (2020). Predicting success in teacher education: Revisiting the influence of high school GPA, admission, and standardized test scores on academic and licensure performance. *Journal of Research, Policy & Practice of Teachers and Teacher Education*, *10*(2), 1-17. https://doi.org/10.37134/jrpptte.vol10.2.1.2020

Borgonovi, F., Choi, A., & Paccagnella, M. (2018). *The evolution of gender gaps in numeracy and literacy between childhood and adulthood*. OECD Education Working Papers, No. 170. OECD Publishing. https://doi.org/10.1787/5jrs3sbx1g7j-en

Calculator.net (Available at https://www.calculator.net/sample-size-calculator.html?type=1&cl=95&ci=5&pp=50&ps=20182&x=Calculate)

Cochran-Smith, M., Keefe, E. S., & Smith, R. J. (2021). A study in contrasts: Multiple-case perspectives on teacher preparation at new graduate schools of education. *The New Educator*, *17*(1), 96-118. https://DOI:10.1080/1547688X.2020.1822485

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge. https://doi.org/10.4324/9781315456539

Collins, P. M. (2002). Predicting a passing outcome on the National Council Licensure Examination for Registered Nurses by associate degree graduates. *Dissertations Abstracts*, *1190*. https://scholarworks.wmich.edu/dissertations/1190

D'Agostino, V. J., & Powers, S. J. (2009). predicting teacher performance with test scores and grade point average: A meta analysis. *American Educational Research Journal*, *46*(1), 146-182. https://www.jstor.org/stable/27667175

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute. https://learningpolicyinstitute.org/product/effective-teacher-professional-development-report

Fraenkel, J. R., & Wallen, N. E. (2009). *How to design and evaluate research in education* (7th ed.). McGraw-Hill

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2023). *How to design and evaluate research in education (11th ed.)*. McGraw-Hill.

Ghasemi, E., Burley, H., & Safadel, P. (2019). Gender differences in general achievement in mathematics: An international study. *New Waves Educational Research & Development*, *22*(1), 27–54.

Hadi, N. U., Abdullah, N., & Sentosa, I. (2016). Making Sense of Mediating Analysis: A Marketing Perspective. *Review of Integrative Business and Economics Research*, *5*, 62-76.

Kalaw, M. T. B. (2017). Trend of De La Salle Lipa education graduates' performance in the licensure examination for teachers. *International Journal of Evaluation and Research in Education (IJERE)*, *6*(2), 138-149.

Krejcie, R. V., & Morgan, D. W. (1970). Sample size determination table. *Educational and Psychological Measurement*, *30*, 607-610.

Lagcao, A., Toquero, C. M., & Tusoy, C. (2023). Predicting success of teacher candidates: Academic performance and licensure examination of BEED graduates from 2017 to 2019. *West African Journal of Educational Sciences and Practice (WAJESP)*, *2*(1). https://doi.org/10.57040/wajesp.v2il.375

Malle, B. F. (2022**)**. Attribution theories: How people make sense of behavior. *Theories in Social Psychology*, (2nd ed.). John Wiley & Sons Ltd.

National Teaching Council (2017). *National Teachers' Standards: Guidelines* (updated version). Ministry of Education. https://ntc.gov.gh/wp-content/uploads/2021/12/NTS.pdf

National Teaching Council. (2022). *Chief examiners reports on Ghana teacher licensure examination (GTLE)*. National Teaching Council.

Nool, N. R., & Ladia, M. A. P. (2017). Trend of performance in the licensure examination of teacher education institutions in Central Luzon, Philippines. *International Journal of Applied Engineering Research*, *12*(24), 15734-15745.

Marks, G. N. (2008). Accounting for the gender gaps in student performance in reading and mathematics: evidence from 31 countries. *Oxford Review of Education*, *34*(1), 89-109. http://doi:10.1080/03054980701565279

Pallant, J. (2016). *SPSS Survival Manual* (6th ed.). Open University Press.

Putman, H., & Walsh, K. (2021). *State of the states 2021: Teacher preparation policy*. US National Council on Teacher Quality.

Rothman, S., & McMillan, J. (2003). *Influences on achievement in literacy and numeracy: Longitudinal surveys of Australian youth (LSAY) research reports.* Australian Council for Educational Research (ACER). https://research.acer.edu.au/lsay_research/40

Santagata, R., & Sandholtz, J. H. (2019). Preservice teachers' mathematics teaching competence: Comparing performance on two measures. *Journal of Teacher Education, 70*(5), 472–484. https://doi:10.1177/0022487117753575

Smith, T. J., Walker, D. A., Hsu, W., Lu, Y., Hong, Z., & McKenna, C. M. (2022). Teacher characteristics as predictors of mathematics attitude and perceptions of engaged teaching among 12th grade advanced mathematics students in the US. *Education Inquiry, 13*(3), 338-353. https://doi:10.1080/20004508.2021.1883910

Van Namen, M. (2021). A deeper look at predicting outcomes for future educators. *Journal of University Teacher & Learning Practice, 18*(4). https://doi.org/10.53761/1.18,4,8

Ghana Journal of Education: Issues and Practices (GJE)
Vol. 10, December 2024, pp. 25 - 52, https://doi.org/10.47963/gje101862

Study Habit and Mathematics Anxiety of Secondary School Students in Ogun West Senatorial District, Nigeria

Asikhia Olubusayo Aduke*

Department of Counselling Psychology Education,
Lagos State University Education
Otto-Ijanikin, Lagos, Nigeria
*Corresponding author's email addresses: olubusayaosikhia@yahoo.com
asihiaoa@lausued.edu.ng

Abstract
Mathematics is a core subject in Nigeria and most countries of the world. However, one of the attributed causes of poor performance in mathematics is mathematics anxiety. Hence, this study focused on the influence of study habit on the mathematics anxiety of senior secondary school students in Ogun West Senatorial District, Nigeria. The Mathematics Anxiety Rating Scale-revised (MARS-R) of Plake and Perker (1982) and the Study Habit Inventory of Bakare (1977) were used as instruments for the study. Data collected were statistically tested at 0.05 level of significance. Analysis of covariance (ANCOVA) and t-test were used to analyse data. Results revealed that although there was no significant difference in the effect of different categories of study habit (low moderate and high) on students' mathematics anxiety, a significant relationship exists between study habit and mathematics anxiety of students in Ogun West Senatorial District. The study also revealed that students with high study habit had more mathematics anxiety than those with medium and low study habits. In this regard, the Nigerian Educational Research and Development Council (NERDC) should include study habit techniques in the secondary school curriculum. Teachers and counselors should also be more proactive in guiding students to cultivate effective study habits so that their mathematical abilities can be enhanced

Keywords: Study habit; mathematics anxiety; secondary school students; teaching; counselling

Introduction

Over the years, mathematics anxiety has become a continuous problem and concern for researchers, educators and policymakers in Nigeria and one of its negative effect has been on student's poor academic performance. For instance, there has been a consistently low performance of students in mathematics in the West African

Examinations Council (WAEC) over the years. (Anyanwu, Emesi & Ezenwosu, 2024; Oguguo & Uboh, 2020; Adenipekun, 2019; Okoye, Okozie and Nlemadium, 2017; Orintunsin, 2010). The WAEC result reported in the study of Oguguo and Uboh (2020), revealed that only 35.15%, 35.9%, 25.7%, 35.99% and 35.10% of students in Nigeria had a credit pass in mathematics between 2016 and 2020 respectively. This development is not good for sustainability of the nation's educational system because mathematics is one of the major courses that require a credit pass before students gain admission into higher institutions and progress in their life pursuits. Van Mier, Schleepen and Van den Berg (2019) among others however, found anxiety in mathematics as one of the major associated factors of students' poor performance in mathematics. Akinsola, Tella and Tella (2007) also recognized that many students in Nigeria see mathematics as being difficult. Meanwhile, mathematics as a subject is one of the core and qualifying subjects for admission into tertiary institutions.

Mathematics anxiety is regarded as a negative attitude that learners have towards mathematics as a subject. (Aldrin, Estonanto & Ryan 2019). This definition implies that students are mathematically anxious when they are not favourably disposed to mathematics which makes them put up some attitudes of disinterest in the subject. Minara (2017) also regards mathematics anxiety as the fright, frustration, incapability and mental disorganisation that happens when people need to solve a mathematical problem. Often times and as pointed out by some scholars, some learners are in this state of helplessness while trying to solve mathematical tasks and if such are left alone, they may develop hatred for the subject which may eventually lead to poor performance. Similarly, Okoiye and Nlemadim (2017) define mathematics anxiety as a negative reaction to Mathematics associated with negative emotions. The effect mathematics anxiety has on students has made many researchers to study a range of moderating variables associated with it among which includes gender, study habit, grade level, geographical region, mathematics performance and the likes. (Yaratan & Kasapoglu, 2012; Hill, Carey & Szucs, 2018; Gunderson, Park, Maloney, Beilock & Levine 2018). Foley, Herts, Borgonovi, Guerriero, Levine, and Beilock (2017) also found that mathematics anxiety could be affected by a range of factors. However, few researchers have attributed poor study habit to mathematics anxiety. (Aldrin, Estonanto & Ryan 2019) This is why this study focused on

finding out the influence of study habit on the mathematics anxiety of senior secondary school students in Ogun West Senatorial District of Nigeria.

Study habit according to Arora (2016) refers to different individual behaviours in relation to studying. This means each individual is predisposed to a specific way of studying. Kamoru (2017) also defines study habit as a combination of study method and skill. This definition offers a progressive explanation to the earlier one as it includes the ability of the individual that is studying apart from the way the individual studies. This is why Jafari, Aghaei and Khatony (2020) concludes that study habits are behaviors and skills that are capable of increasing motivation and make studying an effective process that enhances learning. In other words, studying techniques of learners can be seen as an input while their academic success is the output that results from the input.

In the same vein, according to Mashayekhi, Faramarzpour, Mashayekhi, Rafati and Mashayekhi (2014), the time students spend on studying enhances their ability to retain learning materials and consequently increases their academic performances. This is why some studies have associated the academic performance of students to their study patterns. For instance, the study of Ebele and Olofu (2017) showed a significant relationship between study habits and students' academic performance. Singh (2010) also found a significant relationship between study habit and academic achievement in mathematics. However, in relating the effects of study habit on students' level of mathematics anxiety, few studies like that of Aldrin, Estonanto and Ryan (2019) have found that poor study habits in mathematics is a major cause of mathematics anxiety among senior high school students in Southern Luzon, Philippines.

Hassan (1983) related the causes of test anxiety to study habits and low achievement motivation among others. Also, the studies of Lawrence and that of Mohammed and Annand (2016) focused only on the influence of study habits on the mathematics anxiety of boys and girls without considering the effect of study habit on the mathematics anxiety of different levels of students' study habit (low, medium and high). According to them, these wrong opinions eventually make them have poor grades. Meanwhile, science-oriented subjects like mathematics are important for the scientific and technological development of any nation.

The need for this study is hinged on the fact that over the years, much research has not been carried out on study habits and mathematics anxiety hence there is a dearth of research on the degree of mathematics anxiety exhibited by students with low, moderate and high study habit. Meanwhile, the fact that students fear mathematics is real and needs urgent attention. Furthermore, the Government and other stakeholders seem not to pay much attention to factors that affect students' attitude, belief and consequently their academic performance. These explain why anxiety for subjects like mathematics is real and still exists among learners in the nation.

The problem of this study therefore emerged from the fact that many students fear and fail mathematics which is a very important school subject for entrance into higher institutions and upon which the social, economic, political, scientific and technological development of any nation depend on. Moreover, more studies have been concerned with the effect of study habits on test anxiety of students while few studies have focused on the effects of study habits on student's level of mathematics anxiety. Also, few studies (Lawrence, 2014) and Mohammed and Annand (2016) focused on the influence of study habits on the mathematics anxiety of boys and girls but did not consider the effect of study habits on the mathematics anxiety of different levels of students' study habit (low, medium and high). Study habit was therefore considered as a variable in this study because there is a dearth of research on the effect of study habit on mathematics anxiety. There is also a dearth of research on the mathematics anxiety level of students with low, medium and high study habit.

Aside this, recently, some researchers like Salva and Al Majali (2020) have found that each person is characterized by an optimal level of anxiety called positive anxiety which is a necessary condition for the development of personality as their study showed that 49% of high performing students have a medium level of anxiety and 41% are highly anxious and that a low level of anxiety leads to decrease in academic performance. Morosanova, Fomina, and Filippova (2020) also found that students who have an optimal level of anxiety find the strength and ability to control their emotional state and objectively assess situations. These contrary findings therefore need to be researched upon.

Ogun State was specifically chosen as the area of this present study because the researcher observed that not many secondary school leavers further their education after completing secondary school but

often go into petty trading. Moreover, the National Bureau Statics Report (2022) showed that between 2016 and 2020, the percentage of those who had five credit passes (including English and mathematics) in Ogun State were 52.8%, 54.1%, 51.69%, 35.6% and 36.78 respectively. This is a decline in performance and needs to be addressed urgently so that the consequences of having too many adolescents who are dropouts will not continue to have negative impacts on the economic, social and technological development of the nation.

Thus, recent findings on the positive impacts of anxiety on students' motivation and achievement, the lack of mathematics anxiety research done specifically on secondary school students in Ogun West Senatorial District as well as the serious implications that this can have on the ability of such students to gain admission into higher institutions has made the researcher to investigate the intersections between mathematics anxiety and the mathematics study habits of secondary school students in Ogun west senatorial district, Nigeria.

Purpose of the Study

Specifically, the objectives of this study were:

i. To examine the significant differences in mathematics anxiety of senior secondary students in Ogun State, Nigeria, based on their study habit categorization (low, moderate and high)
ii. To find out the significant influence of study habits on students' Mathematics anxiety.

Research Hypotheses

Based on the aims and objectives highlighted above, the null hypotheses generated for the study are as follows:

i. There is no significant difference in the mathematics anxiety of secondary school students in Ogun West Senatorial District based on their study habit categorization (low, moderate and high).
ii. There is no significant relationship between students' level of study habit and mathematics anxiety.

Literature Review

Several studies have associated study habit with text anxiety but there is not much literature on the influence of study habit on students'

level of mathematics anxiety. Below is among the few studies carried out on this area of concern.

Theories of Mathematics Anxiety

According to Caret et al (2016), most studies have concluded that there is a relationship between poor mathematics performance and mathematics anxiety. However, inability to conclude on the direction of the link (whether mathematics anxiety causes poor academic performance in mathematics or the other way around) has led to the development of many theories on mathematics anxiety (Devine et al., 2012). For instance, while the Deficit Theory suggests that poor performance in mathematics leads to higher anxiety; the Debilitating Anxiety Model suggests that mathematics anxiety hinders academic performance in mathematics by affecting the pre-processing, processing and retrieval of information (Wine, 1971; Tobias & Deutch, 1980; Tobias, 1986). Although the Deficit and Debilitating Anxiety theories have gained prominence over the years, recently, Processing efficiency theory and Attentional control theory (Passolunghi, Caviola, Agnostini, Perin, & Mammarella, 2016) have been used in the field of mathematics anxiety research. Other theories include the Reciprocal Theory by Jansen et al. (2013).and social cognitive theory (Dowker, 2005; Rameriz, Shaw & Maloney, 2018). This study however, focuses on the Deficit theory (Tobias, 1986).

The Deficit Theory of Mathematics Anxiety

The Deficit Theory postulates that low mathematical performance stems, in part, from students' poor academic preparation, including weak study habits and test-taking skills, which, in return, contribute to higher levels of mathematics anxiety (Tobias, 1985; Wittmaier, 1972). This theory implies that poor performance in a mathematics test would lead to higher anxiety and uncomfortable experiences in the future. According to Berch and Mazzocco (2007) and Carey et al (2016), this means that low score in mathematics would deficit the willingness or cause unwillingness to study mathematics and eventually lead to mathematics anxiety.

This theory gives explanation for the existence of negative correlation between mathematics anxiety and academic performance in mathematics. Some of the possible causes of the poor performance in the deficit theory were mathematical learning disabilities in early childhood (Passolunghi, 2011), self-regulation deficits when learning

mathematics (Jain & Dawson, 2009; Lee et al., 2014), and decrease in mathematics performance from one year to the next due to the students remembering their prior poor mathematics performance, particularly in male students (Ma & Xu, 2004). The study of Lyons and Beilock (2012) provided evidence that mathematics anxiety affects the cognitive functioning of students and thereby hinders their ability to learn mathematics. The Deficit theory of mathematics anxiety described above has been used to conceptualize factors influencing mathematics anxiety and how mathematics anxiety affects students' mathematics performance. However, although it has provided the basis for conceptualizing influences of mathematics anxiety, the complexities of pinning down the causes of mathematics anxiety to one factor will continue to lead to the development of further theories.

Students' Study Habit and Mathematics Anxiety

Rabia, Mubarak, Tallat, and Nasir, (2017), defines **s**tudy habit as when an individual dedicates a particular period to learning without being interrupted in any way. This means study habit is a personal devotion to studying without being forced to do so. Raani (2014) also defines study habit as a way by which learners locate materials to be learnt, outline, take notes and summarize those materials to enhance their understanding of the learning materials. In this regard, study habit can therefore be defined as the amount of studying that an individual spends in measures of time. According to Bakare (1977), study habit skills consist of homework and assignment; time allocation to work, reading and note-taking, study period, procedures, concentration; written work; examination and teacher consultation.

The study of Aldrin, Estonanto and Ryan (2019), found that high mathematics anxiety occurs when students realize that their inability to understand and analyse what they are studying would lead them to failure. The study also revealed that most of the participants who rated high on mathematics anxiety scores were the same set of students who had little or no interest at all in learning mathematics. However, although most previous studies have focused on the effect of study habits on test anxiety, there are still some disagreements on such influences. For instance, while the findings of Lawrence (2014) show that no significant difference in gender and study habits of secondary school students and the fact that girls had higher test anxiety than boys, the study of Mohammed and Annand (2016) showed a negative

relationship between study habits and test anxiety of Physical Education male and female students in India. Some studies like those of Baskar (2012), Gettinger and Seibert (2002), Zeidner (1998), Sweidel (1996), Britton and Tesser (1991) also found an inverse relationship between study habits and test anxiety.

In addition, the studies of Cates and Rhymer (2003) and Fannin-Carroll (2014) found that students' inadequate preparation in mathematics occurs due to a combination of high levels of mathematics anxiety and weak study skills. Hattie, Biggs, and Purdie (1996) also conducted a meta-analysis about the effects of learning skills and interventions on the learning of a mostly mixed-race student population and found a strong relationship between interventions that fostered strong study skills and student academic achievement. In the same vein, Brummer and Macceca (2008) found that strong study skills and positive attitudes toward mathematics have positive impact on students' mathematical performance and reduce their overall mathematics anxiety levels.

Furthermore, Okoiye, Okozie and Nlemadum (2017) found a direct impact of academic procrastination and study habits on expressed Mathematics anxiety of secondary school students in Edo State, Nigeria. Also, while Hills and Benlow (2008) found a correlation between study skill and anxiety, the study of Bakare (1977) found a negative relationship between test anxiety and study habit of 0.60 and -0.52 for male and female participants. The study of Yilmaz (2019) also found that math anxiety level of the students with math learning difficulties does not differ from the low achievers.

In the same vein, the study of Rodrigo (2020) on the impact of study habits and anxiety on mathematics achievement of senior high school students in Mati, Phillipines showed that students' study habit and mathematics anxiety do not significantly differ across their field of specialization and that mathematics achievement was significantly correlated to and influenced by the level of their study habits and mathematics anxiety. These studies show that possessing strong study skills, however, could potentially counteract the effects of mathematics anxiety on students.

However, some studies have refuted the finding that mathematics not often lead to poor academic performance in mathematics. For instance, the study of Devine et al. (2018) found that 77% of the highly mathematics anxious group had average or above

average mathematics performance. Likewise, the study of Musch and Broder (1999) found that both mathematics skill and test anxiety influenced academic performance in mathematics but study habits did not.

The study of Evren (2017) on a meta analysis to determine the effect size of anxiety on achievement however, found that anxiety has a negative and significant effect on achievement although the effect size was low. Thus, on the basis of this gap in literature, the inconclusive literature on the effects of anxiety on students' academic performance, the effects of study habit on mathematics anxiety and the dearth of research in this particular area forms the basis of justification for this study.

Methodology

Research Design

The researcher made use of a descriptive survey design to seek descriptive and self-reported information from senior secondary school students in Ogun West Senatorial District. A quantitative approach was used through descriptive statistics, as this approach and design are very effective in finding the effect of study habit on students' mathematics anxiety and the mathematics anxiety level of students with different study habits. (Mariene, 2012).

Sampling and Sampling Procedure

Simple random sampling method was used in picking the three secondary schools in Ogun West Senatorial District of Ogun State. After this, the researcher used a stratified random sampling technique to select 492 students from the three schools. The mathematics anxiety rating scale-revised (MARS-R) used as an instrument to measure students' level of mathematics anxiety was used to screen and select students with high mathematics anxiety. High mathematics anxious students (participants who scored 70% and above on the Mathematics Anxiety Rating Scale) were later stratified into three categories of high, moderate and low study habits based on their scores on the Study Habit Inventory used for the study. This was done by categorising students with high scores of 70% and above as having high study habits while those with study habit scores of 50-69% were categorised into the moderate study habit group and those who scored between 0 and 49% were categorised as having low study habit.

Further stratification based on gender was also made and only 180 high mathematics anxious students were randomly distributed into three groups of high, medium and low study habit based on gender. Stratified sampling technique was therefore used to select and distribute 60 SS2 students (30 boys and 30 girls) into high, moderate and low mathematics study habit as follows:

Table 1: High Mathematics anxious students based on levels of Study Habit and Gender

Levels of Study Habit	Gender	Total
High Study Habit	Male	30
	Female	30
Moderate Study Habit	Male	30
	Female	30
Low Study Habit	Male	30
	Female	30
Total		180

The inclusion criteria of the research were based on the fact that Participants were in senior secondary school 2 (which is next to the final class), they can read and write fluently and so were able to respond correctly to the questionnaire and were willing and ready to participate in the study without coercion.

Ogun West Senatorial District covers the Local Government areas of Ado-Odo/Ota, Egbado North, Egbado South, Imeko, Afon and Ipokia where the researcher has observed from experience that not many secondary school leavers further their education after completing secondary school but often go into petty trading. It is believed that this study will help to throw more light on this problem.

Instrument

Mathematics Anxiety Rating Scale - Revised (MARS-R) developed by Plake and Parker (1982) was used to measure students' level of mathematics anxiety. The scale measures mathematics anxiety through 24-item self-referencing statements that measures their level of anxiety. Participants rated the extent to which they agreed or disagreed with each statement on a five point Likert type scale ranging from 1 (no

anxiety) to 5 (high anxiety). It has demonstrated a coefficient alpha reliability of .98 with the full scale. (Plake and Parker, 1982). The researcher opted for MARS-R developed by Plake and Parker (1982) because they showed that the scale has sound psychometric properties and the scale has been used by scholars outside Nigeria such as Gierl and Bisanz (1995), Campbell and Evans (1997), Woodward (2004), Eden, Heine and Jacobs (2013), Pletzer, Wood, Scherndi, Kerschbaum and Nuerk (2016), Yusuf (2018) and Aldrin, Estonanto and Ryan (2019).

Study Habit Inventory was developed by Bakare (1977) to identify factors affecting the effectiveness of learning in the form of students' defective study habit. It is a self-report inventory which enables the student to describe the situations, habits, and conditions which affect its use of study time and subsequent performance on tests and examinations. The inventory consists of 45 items in form of direct questions to which the subjects were required to provide answers on a five point scale of how frequently they behaved in that way. The questions on the SHI were grouped into eight (8) sections as follows: homework and assignment, reading and note taking, study period procedures, concentration, written work, examinations and teacher consultation. Participants are rated on five point scale from 1 to 5. The test-retest reliability of the SHI is .83 while other studies by Bakare show a correlation between test anxiety and study habit for male and female to be 0.60 and -0.52 respectively. The researcher adopted the inventory for this study because of its psychometric characteristics and its usefulness in identifying the strength and weaknesses of students' study practices.

Data Analysis

The data collected through this study was statistically analysed to determine the significant difference in the level of mathematics anxiety of low, medium and high study habits of senior secondary school students in Ogun state, Nigeria and to find out if a significant relationship existed between study habit and students' Mathematics anxiety. The following statistical procedures were used for this study.

i. Analysis of Covariance (ANCOVA)
ii. t-test
iii. Pearson Product Moment Correlation Co-efficient (PPMC)

Result

A total of 180 high mathematics anxious students with low, medium and high study habits levels of study habit participated in this study and the results are presented below:

Analysis of Results on Hypothesis 1

1) There is no significant difference in the mathematics anxiety of secondary school students in Ogun West Senatorial District based on their study habit categorization (low, moderate and high)..

The results in Table 2 showed the mathematics anxiety scores of students that had low, moderate and high study habit respectively.

Table 2: Descriptive Statistics of Students with Low, Medium and High Study Habit and their mathematics anxiety Scores

			95% Confidence Interval	
Subject Study Habit	**Mean**	**Std. Error**	**Lower Bound**	**Upper Bound**
Low	40.07	3.24	33.50	46.64
Medium	42.35	2.96	36.35	48.35
High	43.95	3.52	36.83	51.07

The result in Table 2 showed that while the mathematics anxiety mean scores of students with low study habit was 40.07; the mean score of students with moderate study habit was 42.35 and those with high study habit was 43.95 with estimated covariate of 89.54. This means that students with High study habit have higher level of mathematics anxiety, followed by those with moderate study habit and those with low study habit. Further analysis to determine significant differences of the mean scores is shown in Table 3 below

Table 3: Univariate Analysis of Covariance of the Differences in the mathematics anxiety Scores of Students with Low, Moderate, and High Study Habit

	Sum of Square	Df	Mean square	F	Sig.
Contrast	1251.50	2	139.06	2.69	.061
Error	1120.87	27	373.36		

The null hypothesis of no significant difference in the mathematics anxiety level of students with low, moderate and high study habit was not rejected because the results in Table 3 reveal that the mean scores of students' study habit (high, medium and low) were not significantly different as the calculated F-ratio was 2.69 at 2 and 27 degree of freedom and at P > 0.05 level of significance.

Analysis of Results on Hypothesis 2

There is no significant relationship between students' study habit and their level of mathematics anxiety

Table 4: Descriptive Statistics of Study Habits and Students' Mathematics Anxiety

	N	Minimum	Maximum	Mean	Std. Deviation
Study Habit	180	0	95.8	98.3	10.49
Mathematics Anxiety	180	0	58.6	75.05	11.01
Valid N (listwise)	180	0	7.8	7.50	2.79

In table 4 above, the mean score of students' study habit was 98.3 while the mean score of their mathematics anxiety 75.05. Also, while the standard deviation score of students' study habit is 10.49, the standard deviation of mathematics anxiety is 11.01. This means that the spread of the data set of students' mathematics anxiety is farther to the mean than their study habit. Pearson Moment Correlation Co-efficient was used to find out the level of relationship between study habit and mathematics anxiety of students as presented in Table 5 and 6 below:

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.142[a]	.020	.011	2.780

a. Predictors: (Constant), Mathematical Anxiety, Study Habit

Table 5 above shows a positive correlation co-efficient between study habit and mathematics anxiety of .142. This positive correlation means that as students' study habit increases, their level of mathematics anxiety increases.

Table 6: Relationship Between Study Habit and Mathematics Anxiety of Students

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
1 (Constant)	10.829	1.646		6.578	.000
Study Habit	-.024	.019	-.092	-1.313	.191
Mathematical Anxiety	-.025	.018	-.100	-1.421	.157

a. Dependent Variable: Score

In Table 6 above, the p value is set at 0.05, thus, the correlation coefficient (r value) .191 is not statistically significant. The null hypothesis of no significant relationship between students' study habit and their mathematics anxiety is therefore not rejected.

Discussion

The first hypothesis of no significant difference in the mathematics anxiety of secondary school students in Ogun West Senatorial District based on their study habit categorization (low, moderate and high) was not rejected as findings from the study showed no significant differences. Though it was predicted that the findings would not support the hypothesis that mathematics anxiety of students with high, moderate and low levels of study habits are statistically significantly different, findings however revealed statistically significant differences. Further findings of this present study also showed that the mathematics anxiety scores of participants with high study habits were higher (43.95) than the mathematics anxiety scores of participants with moderate (42.35) and low (40.07) study habit categorisation.

However, in the literature, study habit differences in relation to mathematics anxiety have not been widely established but few studies have found results that are consistent with this present finding. For instance, the study of Rodrigo (2020) on senior high school students in Mati, Phillipines which showed that students' study habit and mathematics anxiety do not significantly differ across their field of specialization concurs with the result of this study. Fernández, Wang, Ramirez and Villalobos (2021) also reported similar finding that supported the present study as it was shown that Latinx students who expressed a high degree of commitment and class participation in their mathematics classroom yielded higher levels of mathematics anxiety.

The possibility that students with high study habits are willing to study more because they have high expectations for themselves could make them more anxious. More so, in Nigerian modern society where overestimation of higher grades and high expectations of parents on the grades of their children/wards ((Ndukwu & Ndukwu, 2017) is the order of the day. This explanation is supported by the finding of Deb, Sibnath, Esben and Sun (2015) that academic pressure is a consequence of parental pressure which impacts students' mental health and leads to psychological problems related to mathematics anxiety. This means it is possible for students with high study habit to continue to have higher mathematics anxiety because of academic pressure caused by parental pressure. High mathematics anxiety scores could also be attributed to students with high study habits because mathematics is a major requirement for admission into higher institution and so such students may make their passing mathematics a "do or die affair'.

Moreover, this finding reinforces the general understanding that individuals who have high expectations never give up such expectations even when they have tried their best. Thus, expectations of higher grades may generate demanding academic tasks that can eventually increase academic pressure. Moreover, high study habits participants that were used for this study are preparing for their final examinations and may be desperate to pass mathematics because it is a major criterion for admission into higher institution. This means that when students fear mathematics as a subject, it tends to influence their attitudes to studying the subject.

The present study differs from the Deficit theory which posits that weak study habits, contribute to higher levels of mathematics anxiety (Tobias, 1985; Wittmaier, 1972). This means that while this

present study reported higher mathematics anxiety scores for students with high study habit, the Deficit theory of mathematics anxiety supports the fact that it is weak study habits that leads to high mathematics anxiety. This result however contradicts that of Aldrin, Estonanto and Ryan (2019) who found that most of the participants in their study who rated high on mathematics anxiety scale were also the same students who showed little or no interest in learning mathematics and that high mathematics anxiety occurs when students realize that their inability to understand and analyse what they are studying would lead them to failure. (Devine et al., 2012; Ma, 1999).

The second hypothesis which states that there is no significant relationship in the effect of study habit on the mathematics anxiety of students in Ogun West Senatorial District was not rejected as no significant although positive relationship was found in the two variables. This means that although the study habit of secondary school students in Ogun West Senatorial District have no significant influences on their mathematics anxiety scores, a positive relationship exists between these two variables.

The positive relationship of study habit with mathematics anxiety that this study found concurs with the studies of Hills and Benlow (2008), Hattie, Biggs, and Purdie (1996) and that of Okoiye, Okezie and Nlemadim (2017) which showed positive significant impact of study habit on mathematics anxiety of secondary school students in spite of geographical differences in the two studies. The Deficit theory of mathematics anxiety however, does not concur with the result of the present study as it suggests an inverse relationship between mathematics anxiety and study habit that may operate in two directions.

Firstly, mathematics anxiety may reduce individuals' participation in mathematics-related activities and secondly, mathematics failure may create more anxiety and avoidance of mathematics. (Lyons & Beilock, 2012). The study of Bakare (1977), Britton and Tesser (1991), Sweidel (1996), Zeidner (1998), Gettinger and Seibert (2002), Cates and Rhymer (2003), Brummer and Macceca (2008), Baskar (2012), Fannin-Carroll (2014) and Mohammed and Annand (2016), established an inverse relationship between mathematics anxiety and students' study habits.

Likewise, despite the fact that the study of Ogunsanya and Buraimo (2020) who revealed a significant composite influence of study habit and test anxiety on the academic performance of secondary

school students in Ogun state was conducted in the same state with this present study, it did not show similar result with this study. This may be attributed to the fact that while the study of Ogunsanya and Buraimo (2020) focused on the effect of study habit on general anxiety, this present study investigated study habit impacts on mathematics anxiety.

However, the study of Musch and Broder (1999) which investigated the relative contribution of mathematics anxiety, study habits and academic performance in a statistics examination agreed with the result of this study as no relationship was found between the two variables in spite of differences in the research contexts of the two studies (in terms of the exposure of learners to different teachers, school environment, teaching methods and principles, learning facilities and the likes). These results have partly shown the need for more robust student support frameworks and other student support services through the professional development of student services staff (Fox, Thrill, & Keist, 2018).

In addition, although the finding of no significant relationship between mathematics anxiety and study habit of secondary school students reported in this study is not widely established in research, it can be the basis of developing further research and theories in the future since the implication of the finding is that study habit of secondary school students in Ogun West Senatorial District does not have sufficient weight to have significant impact on the mathematics anxiety of such students. This means that apart from study habit, there could be other personal factors (students' self-perception, predispositions, worldly experiences in mathematical problem solving and the likes) and external factors (teachers, parents, peer group among others) that could offer a path for continued investigation. This explanation is supported by the finding of Rada and Lucietto (2024) who investigated global literature through themes commonly associated to a person's mathematics anxiety and reported the influence of individual's previous mathematics performance and environmental impacts such as education systems familial relationships and resources as well as society-held view-points affect students' mathematics anxiety level.

Conclusion

This study has been able to improve knowledge on the basis of no significant relationship between study habit and mathematics anxiety level of secondary school students in Ogun West Senatorial

District, Nigeria and that mathematics anxiety is not statistically significant with any level of study habit categorisation (low, moderate and high). This suggests that other factors other than the study habits must be responsible for mathematics anxiety. Even when a relationship or effect existed it was discovered that mathematics actually drives study habits of students. Future researchers could study psychological and physiological variables of mathematics anxiety and the treatment package interventions of reducing it right from primary schools to establish veritable template for the future of the youths since mathematics is compulsory for their educational advancement and attainments in life.

Recommendations

Based on the findings of this study, the following recommendations are made for the study:

i. The Nigerian Educational Research and Development Council (NERDC) should include study habit techniques in the secondary school curriculum.
ii. Reinforcing techniques that could make the learning of mathematics become interesting rather than a pain should also be used by teachers in the classroom.
iii. Mathematics teachers should be encouraged to go for professional development to enhance their effectiveness in teaching their students and making mathematics more interesting.
iv. A similar research could however be conducted to investigate other causes of mathematics anxiety among secondary school students.

Implications of the Study

The major contribution of this study drew the attention of educational stakeholders (teachers, counselors, administrators, policy makers, government and the likes) in Nigeria and other nations of the world to the importance of other individual student factors that could affect students' mathematical skills apart from study habits. Teachers, counselors and the Nigerian Ministry of Education (in particular) should also be more proactive in guiding students to cultivate effective study habits because of its positive relationship with mathematics anxiety that was reported in the present study. This is particularly

necessary in the light of 21st century's drive for scientific and technological development in most nations of the world and the fact that mathematics as a subject is important for this drive. As society continues to advance in education at an accelerated pace, proper interventions are needed to allow mathematically anxious individuals to thrive and scaffold their learning to develop a complete understanding of mathematics anxiety,

References

Adenipekun, I. (2019, March 12). Mass failure in WASSCE. *Daily Trust.*

Ajai, J., & O., Shiaki. (2020). Study habits and academic achievement: A case study of secondary school science students in the Jalingo Metropolis, Taraba State, Nigeria. *American Journal of Educational Research, 8*(5), 282-285. https://doi.org/10.12691/education-8-5-9

Akinsola, M. K., Tella, A., & Tella, A. (2007). Correlates of academic procrastination and mathematics achievement of university undergraduate students. *Eurasia Journal of Mathematics, Science & Technology Education, 3*(4), 363-370. http://www.ejmste.com/v3n4/EJMSTE_v3n4_Akinsola_etal.pdf

Al Majali, Salwa. (2020). Positive anxiety and its role in motivation and achievements among university students. *International Journal of Instruction. 13*. 10.29333/iji.2020.13459a.

Aldrin, E., & Dio, R. (2019). Factors causing mathematics anxiety of senior high school students in calculus. *Asian Journal of Education and e-Learning, 7*(1), 37-47. 10.24203/ajeel.v7i1.5701.

Anyanwu, A. N., Emesi, K. E., & Ezenwosu, N. E. (2024, June). Secondary school students' academic self-confidence, mental toughness and self-esteem as predictors of academic achievement in Mathematics in Anambra State, Nigeria. *European Journal of Arts, Humanities and Social Sciences, 1*(3), 188-199.

Arora, R. (2016). Academic achievement of adolescents in relation to study habits. *International Journal of Indian Psychology*, *3*(2), 159. https://doi.org/10.25215/0302.159

Ashcraft, M. H., & Faust, M. W. (1994). Mathematics anxiety and mental arithmetic performance: An exploratory investigation. *Cognition and Emotion, 8*(2), 97–125. https://doi.org/10.1080/02699939408408931

Bakare, A. (1977). *Study habits inventory. (SHI) Manual Psycho-educational Research Production*. Ibadan: University Press.

Baskar, M. (2012). Study involvement and test anxiety of higher secondary students. An behavioral and brain functions. *Behavioral Education, 12,* 23-34.

Berch, D. B., & Mazzocco, M. M. M. (Eds.). (2007). *Why is math so hard for some children? The nature and origins of mathematical learning difficulties and disabilities*. Paul H. Brookes Publishing Co.

Britton, B. K., & Tesser, A. (1991). Effects of time-management practices on college grades. *Journal of Educational Psychology, 83*, 405-410. http://dx.doi.org/10.1037/0022-0663.83.3.405

Brummer, T., & Macceca, S. (2008). *Reading strategies for mathematics*. Huntington Beach, CA: Shell Education

Campbell, K., & Evans, C. (1997). Gender issues in the classroom: A comparison of mathematics anxiety. *Education, 117*(3), 332-339.

Cates, G. L., & Rhymer, K. N. (2003). Examining the relationship between mathematics anxiety changes and anxiety specificity. *Learn. Indiv. Diff, 48*, 45-48.

Deb, S., Sibnath, S., Strodl, E., & Sun, H. (2015). Academic stress, parental pressure, anxiety and mental health among Indian high school students. *International Journal of Psychology and Behavioral Science, 5*(1), 26-34.

Devine A., Hill F., Carey E., & Szucs D. (2018). Cognitive and emotional math problems largely dissociate: prevalence of developmental dyscalculia and mathematics anxiety. *Journal of Educational Psychology, 110,* 431–444. 10.1037/edu0000222

Devine, A., Fawcett, W. K., Szűcs, D. & Dowker, A. (2012). Gender differences in mathematics anxiety and the relation to mathematics performance while controlling for test anxiety. *Behavioral and brain functions : BBF., 8*. (33), 10.1186/1744-9081-8-33.

Dowker, A. (2005). *Individual differences in arithmetic: Implications for psychology neuroscience*: Routledge

Ebele, U. F., & Olofu, P. A. (2017). Study habit and its impact on secondary school students' academic performance in biology in the Federal Capital Territory, Abuja. *Educational Research and Reviews, 12*(10), 583–588. http://files.eric.ed.gov/fulltext/EJ1143649.pdf

Eden, C. , Heine, A. & Jacobs, A. (2013). Mathematics anxiety and its development in the course of formal schooling—A review. *Psychology, 4*, 27-35. doi: 10.4236/psych.2013.46A2005.

Ernest, P. (1989). The knowledge, beliefs and attitudes of the mathematics teacher: A model. *Journal of Education for Teaching, 15*(1), 13-33. https://doi.org/10.1080/0260747890150102

Fannin-Carroll, K. D. (2014). *The effect of math anxiety on the academic success of developmental mathematics students* (Doctoral dissertation). Texas A&M University-Corpus Christi.

Fernández, L. M., Wang, X., Ramirez, O., & Villalobos, M. C. (2021). Latinx students' mathematics anxiety and their study habits: Exploring their relationship at the postsecondary level. *Journal of Hispanic Higher Education, 20*(3), 278-296. https://doi.org/10.1177/1538192719852205

Foley, A. E., Herts, J. B., Borgonovi, F., Guerriero, S., Levine, S. C., & Beilock, S. L. (2017). The math anxiety-performance link: A

global phenomenon. *Current Directions in Psychological Science, 26*(1), 52-58. https://doi.org/10.1177/0963721416672463

Fox, H. L., Thrill, C. R., & Keist, J. (2018). *Advancing program review: Evaluating and envisioning the future of program review at Illinois community colleges*. Champaign, IL: Office of Community College Research and Leadership, University of Illinois at Urbana-Champaign.

Gettinger, M., & Schurr, J. (2002). Contributions of study skills to academic competence. *School Psychology Review, 31*(3), 350-365. https://doi.org/10.1080/02796015.2002.12086160

Gierl, M. J., & Bisanz, J. (1995). Anxieties and attitudes related to mathematics in grades 3 and 6. *Journal of Experimental Education, 63*(2), 139–158. https://doi.org/10.1080/00220973.1995.9943818

Gunderson, E. A., Park, D., Maloney, E. A., Beilock, S. L., & Levine, S. C. (2018). Reciprocal relations among motivational frameworks, math anxiety, and math achievement in early elementary school. *Journal of Cognition and Development, 19*(1), 21-46. https://doi.org/10.1080/15248372.2017.1421538

Hassan, T. (1983). Psychosocial predictors of academic achievement. *Psychology of Everyday Living, 2*(2), 155 – 159.

Hassan, T. (1990). Relative efficacy of Cognitive-restructuring and implosive therapy in the treatment of test anxiety. *Journal of Research in Counselling Psychology, 2,* 102-109.

Hattie, J., Biggs, J., & Purdie, N. (1996). Effects of learning skills interventions on student learning: A meta-analysis. *Review of Educational Research, 66*(2), 99. https://doi.org/10.2307/1170605

Hembree, R. (1990). The nature, effects, and relief of mathematics anxiety. *Journal for Research in Mathematics Education, 21*(1), 33-46. https://doi.org/10.2307/749455

Hill, F., Mammarella, I. C., Devine, A., Caviola, S., Passolunghi, M. C., & Szűcs, D. (2016). Maths anxiety in primary and secondary

school students: Gender differences, developmental changes and anxiety specificity. *Learning and Individual Differences, 48*(C), 45–53. https://doi.org/10.1016/j.lindif.2016.02.006

Hills, J., & Benlow, H. (2008). *Effective Study Skills*. London; Ben Book Co.

Hines, C. L., Brown, N. W., & Myran, S. (2016). The effects of expressive writing on general and mathematics anxiety for a sample of high school students. *Education, 137*(1), 39-45.

Jafari, H., Aghaei, A., & Khatony, A. (2019). Relationship between study habits and academic achievement in students of medical sciences in Kermanshah-Iran. *Advances in medical education and practice, 10*, 637–643. https://doi.org/10.2147/AMEP.S208874

Jain, S., & Dowson, M. (2009). Mathematics anxiety as a function of multidimensional self-regulation and self-efficacy. *Contemporary Educational Psychology, 34*(3), 240–249. https://doi.org/10.1016/j.cedpsych.2009.05.004

Jansen, B., Louwerse, J., Straatemeier, M., Van der Ven, S., Klinkenberg, S. & Maas, H. (2013). The influence of experiencing success in math on math anxiety, perceived math competence, and math performance. *Learning and Individual Differences. 24*: 190–197. 10.1016/j.lindif.2012.12.014.

Kamoru, U., & Ramon, O. G. (2017). Influence of self-concept, study habit and gender on attitude and achievement of secondary school students in mathematics. *Journal for Leadership and Instruction, 16*(1), 49–52. http://files.eric.ed.gov/fulltext/EJ1159874.pdf

Lawrence, A. (2014). Relationship between study habits and test anxiety of higher secondary students. *International Journal of Teacher Educational Research, 3*: 1-9.

Lee, F. S., Heimer, H., Giedd, J. N., Lein, E. S., Šestan, N., Weinberger, D. R., & Casey, B. J. (2014). Adolescent mental health—Opportunity and obligation. *Science (New York, N.Y.), 346*(6209), 547–549. https://doi.org/10.1126/science.1260497

Lyons, I. M., & Beilock, S. L. (2012). When math hurts: Math anxiety predicts pain network activation in anticipation of doing math. *PloS ONE, 7*(10), e48076. https://doi.org/10.1371/journal.pone.0048076

Ma, X. (1999). A meta-analysis of the relationship between anxiety toward mathematics and achievement in mathematics. *Journal for Research in Mathematics Education, 30*(5), 520. https://doi.org/10.2307/749772

Ma, X., & Kishor, N. (1997). Attitude toward self, social factors, and achievement in mathematics: A meta-analytic review. *Educational Psychology Review, 9*(2), 89-120. https://doi.org/10.1023/A:1024785812050

Ma, X., & Xu, J. (2004). The causal ordering of mathematics anxiety and mathematics achievement: A longitudinal panel analysis. *Journal of Adolescence, 27*, 165-179. https://doi.org/10.1016/j.adolescence.2003.11.003

Mariene, J. G.(2012). *Strategies for addressing student unrest in secondary schools in Kenya*. Prescott Valley, Arizona

Mashayekhi, F., Faramarzpour, M., Mashayekhi, A., Rafati, S., & Mashayekhi, S. (2014). Key learning issues: Relationship between locus of control and study habits with academic achievement. *Biomedical and Pharmacology Journal. 7*, 567-573. 10.13005/bpj/525.

Minara, Y. (2017). Thinking for the students with mathematical anxiety. *International Journal of Applied Research, 3*(8), 36-41.

Mohammad, A., & Dranand, K. (2016). A study of the relationship between test anxiety and study habits of physical education students. *International Journal of Sports and Physical Education. 2*, 7-10. 10.20431/2454-6380.0203002.

Morosanova, V., Fomina, T., & Filippova, E. (2020). The relationship between the conscious self-regulation of school children's learning activity, their test anxiety level, and the final exam result in mathematics. *Behavioral Sciences, 10*(1), 16.

Morsanyi, K., Busdraghi, C., & Primi, C. (2014). Mathematical anxiety is linked to reduced cognitive reflection: A potential road from discomfort in the mathematics classroom to susceptibility to biases. *Behavioral and Brain Functions: BBF, 10*, 31. https://psycnet.apa.org/fulltext/2014-50910-001.pdf

Musch, J., & Broder, A. (1999). Test anxiety versus academic skills: A comparison of two alternative models for predicting performance in a statistics exam. *The British Journal of Educational Psychology, 69*(1), 105–116. https://doi.org/10.1348/000709999157608

Ndukwu, E. C., & Ndukwu, E. N. (2017). Influence of parental expectations on pupils' self-efficacy and academic success. *International Academic Journal of Social Sciences and Education, 1*(5), 75-88.

Ogugwo, O. U., & Uboh, U. V. (2020). State based analysis of candidates' WASSCE participation and achievement of five credit passes and above including mathematics and English language. *International Journal of Advanced Academic Research, 6*(6). 42-53.

Ogunsanya, A., & Olayinka, B. (2020). *Study habit and test anxiety as determinants of secondary school students performance in Social Studies, 5*, 269–277. https://www.semanticscholar.org/paper/b0b7842f2bb1e6e2d8a0b784a76e632e6c378efd

Okoiye, O. E., & Okezie, N. E. (2017). Impact of academic procrastination and study habit on expressed mathematics anxiety of junior secondary school students in Esan South-East Edo State Nigeria. *British Journal of Psychology Research (BJPR), 5*(1), 32-40.

Onwuegbuzie, H. S (2001) Effect of note taking and rate of presentation on short-term objective test performance. *Journal of Educational Psychology, 63*(3), 276-280.

Orintunsin, J. (2010). *Season of Mass Failure. The Nation Newspaper*. (online).

http://thenationonlineng.net/web2/articles/43147/1/season-of-mass-failure/page1.html

Passolunghi, M. C. (2011). Cognitive and emotional factors in children with mathematical learning disabilities. *International Journal of Disability, Development and Education, 58*(1), 61-73. https://doi.org/10.1080/1034912X.2011.547351

Passolunghi, M. C., Caviola, S., De Agostini, R., Perin, C., & Mammarella, I. C. (2016). Mathematics anxiety, working memory, and mathematics performance in secondary-school children. *Frontiers in Psychology, 7,* https://doi.org/10.3389/fpsyg.2016.00042

Plake, B., & Parker, C. (1982). The development and validation of a revised version of the mathematics anxiety rating scale. *Education and Psychological Measurement, 42*(2), 551- 557.

Pletzer, B., Wood, G., Scherndl, T., Kerschbaum, H. H., & Nuerk, H. C. (2016). Components of mathematics anxiety: Factor modeling of the MARS30-Brief. *Frontiers in psychology, 7*, 91.

Raani, R. (2014). Relationship between home environment and study habit of senior secondary school students. *International Journal for Research in Education, 2*(7), 38-42.

Rabia, M., Mubarak, N., Tallat, H., & Nasir, W. (2017). A study on study habits and academic performance of students. *International Journal of Asian Social Science, 7*(10), 891–897. https://doi.org/10.18488/journal.1.2017.710.891.897

Rada, E. & Lucietto (2024). Math anxiety: A literature review on confounding factors. *Journal of Research in Science, Mathematics and Technology Education.* 1-13. DOI.10.31756/jrsnte.12040.

Ramirez, G., Shaw, S. T., & Maloney, E. A. (2018). Math anxiety: Past research, promising interventions, and a new interpretation framework. *Educational Psychologist, 53*(3), 145-164. https://doi.org/10.1080/00461520.2018.1447384

Rodrigo, A. S., (2020). Mathematics achievement of senior high school students: Impact of study habits and anxiety. *International Journal of English and Education, 9*(3), 202-213.

Singh, S. (2010). *Relationship of anxiety and emotional and social maturity with actualization of general mental ability of high school students* (Unpublished doctoral thesis). Guru Nanak Dev University, Amritsar.

Sweidel, G. (1996). Study strategy portfolio: A project to enhance study skills and time management. *Teaching of Psychology, 23*(4), 246–48.

Tobias, S. (1986). *Anxiety and Cognitive Processing of Instruction. In Schwarzer, R., Ed., Self-Related Cognition in Anxiety and Motivation, Erlbaum, Hillsdale, 35-54. - references - scientific research publishing*. (n.d.). Scirp.org. Retrieved December 5, 2024, from https://www.scirp.org/reference/referencespapers?referenceid=2180731

Deutsch, T. & Tobias, S. (1980). *Prior Achievement, Anxiety, and Instructional Method [microform] / Toni Deutsch and Sigmund Tobias.* [Washington, D.C.] : Distributed by ERIC Clearinghouse https://eric.ed.gov/?id=ED190646

Van Mier, H. I., Schleepen, T. M. J., & Van den Berg, F. C. G. (2019). Gender differences regarding the impact of math anxiety on arithmetic performance in second and fourth graders. *Frontiers in Psychology, 9*. https://doi.org/10.3389/fpsyg.2018.02690

Wine, J. (1971). Test anxiety and direction of attention. *Psychological Bulletin, 76*(2), 92-104.

Wittmaier, B. (1972). Test anxiety and study habits. *Journal of Educational Research, 65*, 352-354.

Woodward, J. (2004). Mathematics education in the United States: Past to present. *Journal of Learning Disabilities, 37*(1), 16–31. https://doi.org/10.1177/00222194040370010301

Yaratan H., Kasapoglu L. (2012). Eighth grade students' attitude, anxiety, and achievement pertaining to mathematics lessons. *Proc. Soc. Behav. Sci., 46*, 162–171. 10.1016/j.sbspro.2012.05.087

Yilmaz, A. B. (2019). Distance and face-to-face students' perceptions towards distance education: A comparative metaphorical study. *Turkish Online Journal of Distance Education, 20*(1), 191–207. http://files.eric.ed.gov/fulltext/EJ1201959.pdf

Zakariya, Y. F. (2018). *Development of mathematics anxiety scale: Factor analysis as a determinant of subcategories*. *2*, 135–144. https://www.semanticscholar.org/paper/7d5aa6fba14528301cd9b5ac9c57654d838de03c

Zeidner, M. (1998). *Test Anxiety. The state of the Art*. New York: Plenum.

Ghana Journal of Education: Issues and Practices (GJE)
Vol. 10, December 2024, pp. 53 - 72, https://doi.org/10.47963/gje101864

Pre-Service Science Teachers' Awareness of their Critical Thinking Abilities

Kofi Acheaw Owusu *, Godwin Kwame Aboagye , & Charles Deodat Otami

Department of Science Education, Faculty of Science Technology Education, College of Education Studies, University of Cape Coast

Corresponding author's email address: acheaw.owusu@ucc.edu.gh

Abstract

Critical thinking, a core 21st century skill, is needed to effectively explore, analyse, and evaluate problems to be able to find sustainable solutions. Hence, the advocacy for its inclusion in school curricula as part of learning outcomes for students with the universal belief that it fosters academic success. This means teachers should possess the ability to develop critical thinking skills in their students. Thus, teacher education programmes should prepare prospective teachers to acquire the skill to enable them to develop same in their future students. Therefore, this study explored prospective science teachers' awareness of their critical thinking abilities through a survey in a Ghanaian university. The results showed that pre-service science teachers had high levels of awareness of their critical thinking abilities. Although no gender differences were found in the pre-service science teachers' awareness of their critical thinking abilities, the final year students had high levels of awareness as compared to the other students. It was concluded that awareness of critical thinking abilities is ultimately influenced by the university course units earned. Teacher education programmes should consciously develop critical thinking skills among students throughout the programme.

Keywords: Critical thinking; awareness; abilities; pre-service science teachers; academic levels

Introduction

Survival in this generation demands new knowledge, skills and attitudes. This dispensation has come with communication and information tools that have affected how we live (Alayyar, Fisser, & Voogt, 2012; Niess, 2005) leading to rapid acquisition and transformation of knowledge (Yalçın & Çelikler, 2011). The resultant

effect is the demand for a new crop of employees required to successfully survive in the current aggressive work environment. The Partnership for 21st Century Skills (2007), accordingly, has developed a vision for student success in the new global economy. They indicated that students who want to have a competitive edge need to possess learning and innovative skills of which critical thinking is an essential component.

Critical thinking is the ability to undertake "reasonable reflective thinking focussed on deciding what to believe or do" (Ennis, 1993, p.180). Facione (1998) accentuated that experts on the Delphi project on critical thinking agreed that the act of being purposeful and engaging in self-regulatory decision-making that leads to interpretation, analysis, evaluation, and inference is what describes critical thinking. Cottrell (2005) also argued that critical thinking is the ability to identify other people's positions, arguments, and conclusions, evaluate the evidence for alternative points of view, fairly weigh opposing arguments and evidence, read between the lines, see through the surface, and spot false or unfair assumptions.

It is expected that individuals should be able to analyse issues, evaluate options and arrive at informed conclusions based on available information to influence society positively. These activities constitute critical thinking. Cottrell (2005), therefore, underscored that critical thinking enables individuals to make better and more informed decisions about the worthwhileness or the otherwise of information, events and issues. Consequently, it can be argued that individuals who think critically are capable of evaluating evidence to identify whether they are authentic or spurious. Critical thinkers tend to put up strong and better viewpoints or arguments knowing the associated strengths and weaknesses of their arguments. Kurfiss (1988), therefore, highlighted that any healthy democratic society needs individuals who possess critical thinking skills since it is an essential capacity needed for a humane and rational society.

Critical thinking is generally categorised into two broad dimensions: dispositions and abilities. When certain conditions are provided, the propensity to behave in a particular manner is how Ennis (1996) defined critical thinking disposition. He argued that for certain actions to qualify as critical thinking dispositions, they must be applied reflectively. Facione, Facione and Sanchez (1994) dictated that thinking disposition constitutes one's attitudes, intellectual virtues, and

habits of mind. Facione (2000) further argued that human dispositions are the essential distinguishing features of individuals. Perkins, Jay, and Tishman (1993) also argued that thinking dispositions are cognitive behaviour controllers and determinants that are influenced by the affinities of the arrays of intellectual activity. Critical thinking abilities are seen as the ability to think reflectively, act purposefully, critique and analyse issues to decide what to do (Ennis, 1994, Facione, Sanchez, Facione, & Gainen, 1995).

Facione et al. (1995) identified seven dispositions of critical thinking. These are inquisitiveness, open-mindedness, systematicity, analyticity, truth-seeking, critical thinking (CT) Self-confidence and maturity. They explained that the 'inquisitiveness' disposition entails an individual's intellectual curiosity which leads to a person desiring to learn even if the knowledge to be gained and its applications are not for immediate use. This indicates that critical thinkers are curious for knowledge and are always looking for avenues to learn. The ability to be aware of one's own biases and the capacity to accept different and divergent views constitutes open-mindedness. Facione et al. (1994) noted that critical thinkers are diligent, focused, organized and demonstrate orderliness. They noted that such individuals exhibit systematic and methodical approaches when solving problems. These attributes are made possible because the individual possesses the systematicity disposition.

Critical thinkers can use evidence and reason to solve problems as well as identify potential difficulties because they possess the disposition of analyticity. The Truth-seeking disposition entails a quest to pursue the appropriate and best knowledge at any point in time, the penchant to ask questions and being objective even if the available evidence does not favour the individual. Facione et al. (1995) expatiated that when an individual is aware of their reasoning processes then such an individual has the critical thinking self-confidence disposition. They argued that this disposition enables an individual to trust in the appropriateness and soundness of their reasoning and judgments. They noted, however, that this disposition can be underestimated or overestimated by individuals. The last disposition identified by Facione et al. (1995), as far as critical thinking is concerned, is the maturity disposition. They highlighted that this disposition makes an individual thoughtful and cautious when making decisions. This disposition makes an individual aware that some

problems are ill-defined and natured and, therefore, their solution may involve multifaceted approaches.

Aside from the dispositions, the other side of critical thinking is the critical thinking abilities or skills. Facione et al. (1994) observed that individuals engaged in critical thinking do so through the use of analysis, interpretation, inference, explanation, evaluation, and self-regulation. They underscored that these are cognitive skills that critical thinkers use to arrive at an informed and sound judgment. Ennis (1985) identified certain abilities critical thinkers demonstrate and puts these abilities into elementary clarification, basic support, inference, advanced clarification and strategy and tactics. Each category consists of specific abilities that the critical thinker should demonstrate. For elementary clarification, Ennis (1985) reasoned that there should be the ability to focus on attention, analyse arguments, ask and answer clarification and challenge questions. The abilities that constitute basic support include the ability to judge the credibility of the source of information, undertake observations as well as critique observational reports. It was further noted that critical thinkers should be able to make deductions and judge deductions that others have made; induce and judge inductions; infer hypotheses and explanations and make value judgments. Thus, the dispositions and abilities culminate into an individual's critical thinking capabilities.

Since education is the fulcrum through which societal norms, mores and values are shaped, Bailin and Siegel (2003, p.188) argued that "critical thinking is often regarded as a fundamental aim and an overriding ideal of education." Critical thinking is accepted within society as a very powerful tool needed in every educational system and a necessary commodity required for successful personal and civic life (Facione et al., 1995). The education system, therefore, has a huge responsibility to ensure that learners will not just pass their examinations but will and must be able to think critically. Teachers will be doing a great disservice to their students and society at large if they concentrate only on the academic achievement of their students and neglect fostering the ability to think critically among the students. Critical thinking is an enduring ability that should be paramount for colleges and universities to nurture among their students because of its pivotal role in lifelong learning (Jiang, Hu, Zhang, & Yin, 2022; Terenzini Springer, Pascarella, & Nora (1995)

Kurfiss (1988) emphasized that educators are required to foster and develop the capacity to think critically in students and that since critical thinking can be built, developed and nurtured through an individual's learning processes (Duran & Şendağ, 2012), teachers must emphasize critical thinking skills among their students. Teachers are, therefore, anticipated and required to possess critical thinking skills and develop same in their students. This is especially so for science teachers who are required to develop future science professionals. Since science seeks to foster ways of thinking and working to make sense of the natural world, which is achieved through making sense of what we see around us by constructing explanations of them (Newton, 2008), people who have been trained in science are expected to develop a practical problem-solving attitude, rational approach to issues and nurture scientific disposition which are requirements for developing one's capacity to deal with and manage everyday life (Osborne, 2010). These attributes fit into critical thinking skills and, therefore, science teachers must be capable of nurturing them in their students.

The Ghanaian pre-tertiary curriculum has explicitly identified critical thinking and problem solving as a competency expected of learners after going through the educational system (Ministry of Education, 2018). Ghanaian teachers are expected to facilitate the development of their learners' critical thinking abilities. Such expectations become pronounced in science where by default critical thinking and problem solving are requirements needed to be successful in that area (Reffhaug, Andersson-Bakken, & Jegstad, 2024). Science teachers are, therefore, expected to demonstrate critical thinking skills for them to successfully develop that of their students. This implies that the training of science teachers should factor in the development of critical thinking. Thus, the critical thinking skills of pre-service science teachers are important if the nation is to realize its dreams of students developing critical thinking abilities. This is because preservice teachers will eventually become professional teachers who will be expected to nurture critical thinking skills in their students. It is, therefore, important that their critical thinking skills are elicited and necessary remediation and intervention provided if found necessary so that they can ultimately facilitate the development of their students' critical thinking skills. In the absence of such vital information, there could be dire repercussions on the future generation of science students which will ultimately affect society because as noted by Giancarlo and

Facione (2001) students' ability to solve problems through critically examining available avenues are enhanced when their critical thinking dispositions are developed. Thus, this study sought to assess pre-service science teachers' awareness of their critical thinking abilities.

To successfully attain this aim, three research questions guided the study:

1. What is the level of pre-service science teachers' awareness of their critical thinking abilities?

2. What are the differences in awareness among pre-service science teachers' critical thinking abilities across the various academic levels?

3. What difference exists in awareness of critical thinking abilities between male and female pre-service science teachers?

Literature review

It appears, however, that research on critical thinking has sought to identify relationships between critical thinking skills/disposition and academic achievement. For instance, Dehghani, Mirdoraghi, and Pakmehr (2011) investigated the role of graduate students' achievement goals and their disposition towards critical thinking in a university in Iran and realised that there was a significant relationship between students' achievement goals and their critical thinking disposition. The evidence alluded to the fact that students' critical thinking disposition could be predicated on their achievement goals. Although there was no effort to identify causality, the evidence pointed to the fact that there was an association between students' achievement and critical thinking prowess. Similarly, Karagöl and Bekmezci (2015) examined the relationship between academic achievements and critical thinking dispositions of university teacher candidates in terms of school type, the field of study and gender in two universities in Turkey. They found that both critical thinking dispositions and academic achievements of teacher candidates did not differ according to the type of school. Critical thinking dispositions of teacher candidates differed according to the field of study and there was a positive but weak relationship between critical thinking dispositions and academic achievements of

teacher candidates. Their results revealed that the critical thinking dispositions of teacher candidates do not differ in terms of gender.

Wan and Cheng (2019) identified a positive relationship between critical thinking, classroom learning environment and achievement among Hong Kong students. They accentuated that critical thinking skills had a full mediation effect between students' classroom learning environment and their achievement in liberal studies. In a similar vein, Dökmecioğlu, Tas and Yerdelen (2020) found positive relationships among students' perception of their constructivist classroom learning environment, metacognitive self-regulation strategies and critical thinking dispositions.

To identify causality between critical thinking and academic achievement, Chukwuyenum (2013) investigated the impact of critical thinking on the performance in mathematics among 195 senior high school students through a quasi-experimental design where the experimental group received training on critical thinking. The results showed that critical thinking training was effective in improving students' achievement in mathematics. There was, however, no significant difference in performance regarding gender. In similar causality research, Arsal (2015) also found that pre-service teachers' critical thinking dispositions improved after microteaching in a quasi-experimental design and suggested that teacher educators should encourage pre-service teachers to engage in microteaching to improve their critical thinking dispositions. In a similar university setting, Sönmez, Memiş and Yerlikaya (2021) used an argumentation-based enquiry approach to improve preservice science teachers' critical thinking abilities through a chemistry course. They concluded that argumentation-based enquiry has a significant impact on the development of critical thinking among teacher candidates.

The literature on preservice teachers' critical thinking dispositions and skills is not conclusive. While Bakir (2015) found that the critical thinking disposition of pre-service teachers was low, with no significant difference in terms of gender and class level but a weak positive relationship between academic achievement and critical thinking dispositions, Yorganci (2016) indicated that pre-service mathematics teachers had moderate critical thinking dispositions with strong positive relationships among all six subscales (Open-mindedness, inquisitiveness, systematicity, truth-seeking, analyticity, and self-confidence) with significant differences in students' critical

thinking disposition based on gender and grade level. The males performed better than the females on the inquisitive subscale just as the first years outperformed their fourth-year counterparts on the self-confidence scale. Giancarlo and Facione (2001) on the other hand found that females had an overall better score on critical thinking disposition than males. Fikriyati, Agustini, and Suyatno (2022) also identified that both the critical thinking dispositions and critical thinking skills of pre-service science teachers as low. They also observed a significant positive correlation between pre-service science teachers' critical thinking dispositions and critical thinking skills. Welter, Emmerichs-Knapp, and Krell (2023) accentuated that the critical thinking skills of pre-service biology teachers in Germany fell between the low–average range. They further elucidated that students in the master's program demonstrated clearly superior CT skills than those in the bachelor's program. Similarly, Misbah, Hamidah, Sriyati, and Samsudin (2024) noted that pre-service physics teachers demonstrated low proficiency in critical thinking skills across various indicators such as elementary clarification and advanced clarification.

Pilevarzadeh, Shahrokhi and Salari (2015) did not find any significant relationship between critical thinking and the educational progress of students when they investigated the effect of critical thinking on the educational progress of nursing university students. Again, Akgun and Duruk (2016) after investigating pre-service science teachers' critical thinking dispositions in the context of personal and social factors indicated that pre-service science teachers' critical thinking dispositions were low with no significant difference in terms of gender and grade. Although Alper (2010) in a study to explore critical thinking disposition of pre-service freshmen and senior student teachers found that the freshmen and the fourth-year students' disposition scores in all the subscales except for truth-seeking were consistently above 40 indicating a relatively moderate critical thinking disposition, the students did not differ in critical thinking dispositions across the grade level. Yeh and Wu (1992) and Saka (2009), however, reported a positive significant relationship between critical thinking and the educational progress of elementary students, high school students, and university students.

The outcome of no relationship between grade level and critical thinking skills and lower grade levels outperforming their higher grade levels in terms of critical thinking dispositions as seen in Alper (2010)

contradicts Facione et al. (1995) and Giancarlo and Facione (2001) who asserted that as students' progress in educational maturity, their intellectual inquisitiveness and their desire to develop content and pedagogical knowledge continuously increase leading to increased critical thinking abilities.

The evidence from the literature indicates that there is no consensus with regard to the level of critical thinking dispositions among students. Different authors tend to have different results. In some instances, students demonstrate high levels of critical thinking dispositions and skills (Alper, 2010; Arsal, 2015; Dehghani, Mirdoraghi, & Pakmehr, 2011). Unfortunately, there are instances where students' critical thinking abilities were found to be low (Akgun & Duruk, 2016; Bakir, 2015; Fikriyati, Agustini, & Suyatno, 2022; Misbah, Hamidah, Sriyati, & Samsudin, 2024; Welter, Emmerichs-Knapp, & Krell, 2023). Such inconsistent outcomes do not augur well for planning and effective teaching. There ought to be concrete evidence to facilitate and guide teachers to be able to successfully develop and nurture students to the level of competence expected of them in the 21st century.

Similarly, there seem to be varying results and outcomes in critical thinking skills in terms of gender and grade level. Some studies (eg., Yorganci 2016) identified gender differences among students in terms of their critical thinking abilities. Again, grade level inconsistencies regarding critical thinking are a major issue that needs to be dealt with. This is because there seemed to be the argument that students' critical thinking is not affected by the number of courses taken in school as well as maturity levels of students. This creates a gap in research that needs to be filled. Additionally, most of the researches were not explicit on the subjects of the students, especially at the university level. It is pertinent that critical thinking research becomes subject-specific to guide curriculum development and policy implementation.

Methodology

Design and Participants

The major aim of the study was to assess pre-service teachers' awareness of their critical thinking abilities. This was done using the cross-sectional survey design. The study was cross-sectional since a 'snapshot' of pre-service science teachers were surveyed at a particular

point in time (Cohen, Manion, & Morrison, 2007). The cross-sectional design was used to reduce the pressure of time and resources (Gray, 2004). All 592 pre-service science teachers from levels 100 to 400 of the Department of Science Education in the University of Cape Coast, Ghana were used to gain insights into their awareness of their critical thinking abilities. The distribution of the respondents according to levels were 143, 157, 134 and 158 for levels 100 to 400 respectively. There were 460 males and 132 females in the sample. The study was conducted in the second semester of the academic year.

Instrumentation

Information regarding the pre-service science teachers' awareness of their critical thinking abilities was gathered with the 25-item questionnaire constructed by Cottrell (2005) for measuring one's awareness of critical thinking abilities. Each item on the questionnaire was scored on a five-point Likert-type scale format (4-strongly agree, 3-agree, 2-sort of agree, 1-disagree, 0-strongly disagree). The higher the scale score, the more critical thinking abilities are demonstrated. Cottrell (2005) explained that a score over 75 suggests one is very confident about their critical thinking ability while a score under 45 means one is unsure of their ability. Although Cottrell's instrument has been validated, since it was being used in a new context it was deemed appropriate to be validated again. Thus, Cronbach's alpha reliability coefficient was estimated to be 0.88.

The high reliability nonetheless, it should be noted that questionnaires come with inherent weaknesses. As a self-report tool, respondents have been found to either under or overestimate their abilities, skills and perceptions which Creswell (2012) refers to as response bias. There is also the tendency of respondents to exaggerate, lie or provide responses they believe are socially desirable and acceptable (Gray, 2004; Paulhus & Vazire, 2007).

Results

In this study, the level of pre-service science teachers' awareness of their critical thinking abilities was explored using Cottrell's (2005) interpretation where a score of between 0-25 depicts low confidence, 26-50 depicts moderate confidence, 51-75 depicts high confidence and 76-100 depicts very high confidence in their critical

thinking awareness. It was found as shown in Table 1 that generally, pre-service science teachers demonstrated relatively high confidence (72.61) in their awareness of critical thinking abilities. As shown in Table 1, Level 400 students exhibited the highest confidence while Level 200 were the least confident in their awareness of critical thinking abilities.

Table 1: Critical Thinking Awareness Scores of Pre-Service Teachers

Level	Critical Thinking Awareness Score
100	72.85
200	69.61
300	70.87
400	77.10
Grand Score	72.61

The study further examined whether there were statistically significant differences in awareness among pre-service science teachers' critical thinking abilities across the various academic levels. To achieve this objective, a one-way analysis of variance (ANOVA) was used and the results are presented in Table 2. Data in Table 2 shows that there was a statistically significant difference in the awareness of critical thinking abilities among the levels of pre-service science teachers [$F(3,588) = 13.165$, $p < .001$].

Table 2: Results of One-way ANOVA of Pre-Service Science Teachers' Critical Thinking Awareness

Level	Mean	Std Deviation	N	F	df_1	df_2	P
100	2.91	.46	143	13.165	3	588	.001*
200	2.78	.46	157				
300	2.82	.47	134				
400	3.08	.42	158				

Since there was a statistically significant difference in the awareness of critical thinking abilities among the pre-service teachers, a Post Hoc analysis using Tukey HSD was performed to ascertain where the difference lies. Table 3 presents the Post Hoc multiple comparison results.

Table 3: Results of Post Hoc Analysis

(I)Level	(j) Level	p
100	200	.063
	300	.461
	400	.001*
200	300	.780
	400	.001*
300	400	.001*

As shown in Table 3, there was no statistically significant difference in the awareness of critical thinking abilities between Level 100 (M=2.91, SD=.46) and Level 200 (M=2.78, SD=.46, p=.063). There was also no statistically significant difference in the awareness of critical thinking abilities between Level 100 (M=2.91, SD=.46) and Level 300 (M=2.82, SD=.47, p=.461). There was, however, a statistically significant difference in the awareness of critical thinking abilities between Level 100 (M=2.91, SD=.46) and Level 400 (M=3.08, SD=.42, p<.001*) with Level 400 having the highest awareness of critical thinking abilities. Regarding Table 3, there was no statistically significant difference in the awareness of critical thinking abilities between Level 200 (M=2.78, SD=.46) and Level 300 (M=2.82, SD=.47, p=.780). There was a statistically significant difference in the awareness of critical thinking abilities between Level 200 (M=2.78, SD=.46) and Level 400 (M=3.08, SD=.42, p<.001*) with Level 400 having the highest critical thinking ability. There was also a statistically significant difference in the awareness of critical thinking abilities between Level 300 (M=2.82, SD=.47) and Level 400 (M=3.08, SD=.42, p<.001*) with Level 400 having the highest critical thinking ability.

A mean plot of the awareness of critical thinking abilities among the levels of pre-service science teachers was conducted. This was done to provide a pictorial representation of the critical thinking abilities of the various levels of respondents as illustrated in Figure 1.

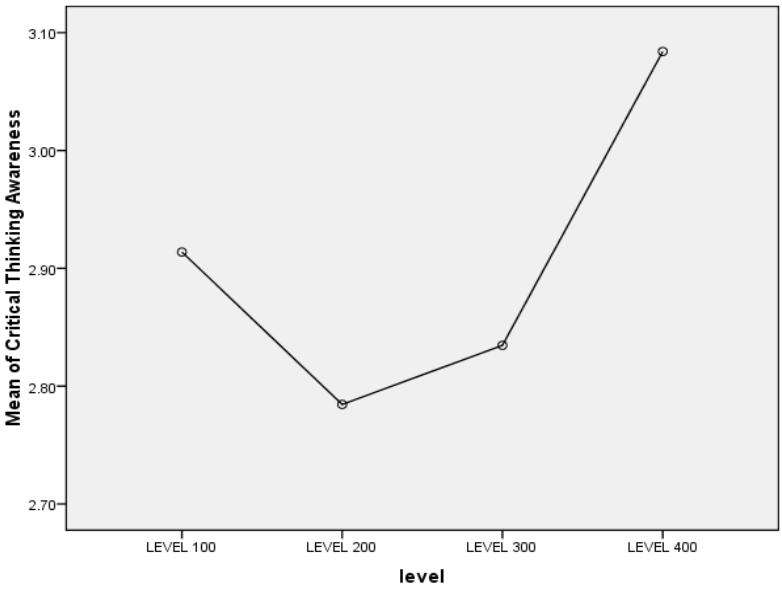


Figure 1. Mean of Critical Thinking Awareness among the Levels

Again, the study explored whether there was any difference in awareness of critical thinking abilities between male and female pre-service science teachers. As indicated in Table 4, the independent samples t-test showed that there was no statistically significant difference in the awareness of critical thinking abilities between male [*M*=2.92, *SD*=.46] and female [*M*=2.83, *SD*=.47] pre-service science teachers [*t*(590) = 1.1731, *p*=.084]

Table 4: Results of Independent Samples t-test between Male and Female Pre-Service Teachers

Sex	N	Mean	Std. Deviation	t	df	p
Male	460	2.92	.46	1.731	590	.084
Female	132	2.85	.47			

Discussion

Pre-service science teachers in this study exhibited high confidence with regards to their awareness of their critical thinking abilities when their means were viewed in the light of Cottrell's (2005)

interpretation. The outcome of this study seemed to align with Alper (2010), who identified that pre-service freshmen and senior student teachers had high critical thinking disposition scores. On the other hand, Akgun and Duruk (2016) reported low critical thinking dispositions among pre-service science teachers. Evidence from this study points to the fact that pre-service science teachers are capable of making informed decisions due to their awareness of their critical thinking abilities. This is because critical thinking awareness can influence an individual to make appropriate, valid and worthwhile decisions (Bielik, & Krüger, 2022; Facione et al.1995).

The statistical difference obtained in the awareness of pre-service science teachers' critical thinking abilities between Level 400 students and those in the lower levels suggest that ultimately the number of years and courses that are taken in university influence students' critical thinking skills. This outcome emanates from the fact that, fundamentally, as students climb the academic ladder, they would have been introduced to several courses which cumulatively will enhance their critical thinking abilities. However, in this study, no significant difference was seen among Levels 100 to 300 participants in their awareness of their critical thinking abilities. Again, the lack of difference among Levels 100 to 300 could be due to two reasons: the Level 100 students thought too highly of their abilities since they had gained admission into the university and probably thought they were academically good and therefore could think critically. Thus, they may have overestimated their critical thinking abilities (Facione et al., 1995). The level 100 students may have fallen victims to response bias (Creswell, 2012) or provided responses they felt were socially acceptable and desirable (Paulhus & Vazire, 2007). The Level 200 and 300 students had undergone a course in critical thinking and therefore had more knowledge when it comes to critical thinking. This course focuses on developing critical thinking skills by applying logical principles to real-life situations through the use of practical logic. Students learn to make informed judgments about claims, behaviours, and societal practices. This probably could have caused them to underestimate their critical thinking abilities (Facione et al., 1995). Nonetheless, at level 400 the students' critical thinking awareness had increased than all the other lower levels.

Another probable reason for the difference in the awareness of critical thinking abilities of the pre-service teachers is that as they

progress in educational maturity, their intellectual inquisitiveness and their desire to develop content and pedagogical knowledge continuously increase (Facione et al., 1995). This is in agreement with Yeh and Wu (1992) who reported a positive significant relationship between critical thinking and the educational progress of elementary students, high school students, and university students. Saka (2009) also concluded that there is a significant relationship between critical thinking and the scale of educational progress. Generally, the background knowledge of an individual plays a crucial role in their critical thinking abilities (Willingham, 2007). The result of this study, on the other hand, contradicts those of Facione (1990) and Pilevarzadeh et al. (2015) which showed no significant relationship between critical thinking and students' educational progress. Case (2005) and Kennedy et al. (1991) regard background knowledge as a necessary but not sufficient condition for critical thinking.

Furthermore, it was found in this study that there was no difference between males and females pre-service science teachers' awareness of their critical thinking abilities. This finding was similar to that of Karagöl and Bekmezci (2015) who reported no gender differences in pre-service teachers' critical thinking disposition and skills respectively. This finding indicates that there are no gender biases when it comes to the awareness of pre-service science teachers' critical thinking abilities.

Conclusions and Implications

Based on the findings of the research, it can be concluded that pre-service science teachers exhibit a strong awareness of their critical thinking abilities, suggesting a well-developed self-perception in this area. Notably, this awareness is most pronounced among Level 400 students, indicating that as students progress through their training, their recognition of their critical thinking skills becomes more refined. Additionally, the study reveals that there is no significant gender disparity in the awareness of critical thinking abilities, suggesting that both male and female pre-service science teachers possess an equal understanding of their critical thinking capabilities. These findings highlight the effectiveness of the current educational practices in fostering critical thinking awareness among pre-service science teachers, irrespective of gender. The findings from this study could imply that pre-service science teachers might have an initial

overestimation of their awareness of critical thinking abilities and so courses that encourage critical thinking should be introduced right from Level 100 to enable them to avoid the tendency of overestimating their awareness. Also, interventions that seek to promote critical thinking in science teacher preparation should go beyond gender biases. These interventions should be explicitly included in the curriculum and course outlines of courses. Lecturers should therefore ensure that they place emphasis on students' critical thinking abilities in their classes. There should be an attempt to assess students critical thinking along the various dispositions and abilities. Such assessment can provide insights into the nature of students' critical thinking which could lead to the development of specific and targeted interventions.

References

Akgun, A., & Duruk, U. (2016). The investigation of preservice science teachers' critical thinking dispositions in the context of personal and social factors.*Science Education International, 27*(1), 3-15.

Alayyar, G. M., Fisser, P., & Voogt, J. (2012). Developing technological pedagogical content knowledge in pre-service science teachers: Support from blended learning." *Australasian Journal of Educational Technology, 28*(8), 1298-1316.

Alper, A. (2010). Critical thinking disposition of pre-service teachers. *Education and Science, 35*(158),14-27.

Arsal, Z. (2015). The effects of microteaching on the critical thinking dispositions of pre-service teachers. *Australian Journal of Teacher Education, 40*(3), 140-153. http://dx.doi.org/10.14221/ajte.2014v40n3.9

Bailin, S., & Siegel., H. (2003). Critical thinking. In N. Blake, P. Smeyers, R. Smith, & P. Standish (Eds.), *The Blackwell guide to the philosophy of education*, (pp. 181-193). Blackwell.

Bakir, S. (2015). Critical thinking dispositions of pre-service teachers. *Educational Research and Review, 10*(2), 225-233.

Bielik, T., & Krüger, D. (2022). Perceived relevance of critical thinking aspects for biology graduate students. *Journal of Biological Education, 58*(1), 166–181. https://doi.org/10.1080/00219266.2022.2026806

Case, R. (2005). Moving critical thinking to the main stage. *Education Canada, 45*(2), 45–49.

Chukwuyenum, A. N. (2013). Impact of critical thinking on performance in mathematics among senior secondary school students in Lagos State. *IOSR Journal of Research and Method in Education, 3*(5), 18-25.

Cohen, L., Manion, L., & Morrison, K. (2007). (6th ed.). *Research methods in education*. Routledge.

Cottrell, S. (2005). *Critical thinking skills: Developing effective analysis and argument*. Palgrave Macmillan.

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research.* (4th ed.). Pearson Education.

Dehghani, M., Mirdoraghi, F., & Pakmehr, H. (2011). The role of graduate students' achievement goals in their critical thinking disposition. *Procedia -Social and Behavioral Sciences, 15*, 2426-2430.

Dökmecioğlu, B., Tas, Y., & Yerdelen, S. (2020). Predicting students' critical thinking dispositions in science through their perceptions of constructivist learning environments and metacognitive self-regulation strategies: A mediation analysis. *Educational Studies.* DOI: 10.1080/03055698.2020.1833838

Duran, M., & Şendağ, S. (2012). A preliminary investigation into critical thinking skills of urban high school students: Role of an IT/STEM Program. *Creative Education 3*(2), 241-250. DOI: http://dx.doi.org/10.4236/ce.2012.32038

Ennis, R. H. (1985). A logical basis for measuring critical thinking skills. *Educational Leadership, 43*, 44-48.

Ennis, R. H. (1993). Critical thinking assessment. *Theory Into Practice, 32*(3), 179-186.

Ennis, R. H. (1994). *The nature of critical thinking: An outline of critical thinking dispositions and abilities*. Paper presented at the Sixth International Conference on Thinking at MIT, Cambridge, MA.

Ennis, R. H. (1996). Critical thinking dispositions: Their nature and assessability. *Informal Logic, 18*(2 & 3), 165-182.

Facione, P. A. (1990). *Executive summary: Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction.* The California Academic Press.

Facione, P. A. (1998). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction.* Insight Assessment; California State University.

Facione, P. A. (2000). The disposition toward critical thinking: Its character, measurement, and relationship to critical thinking skill. *lnformal Logic, 20*(1), 61-84.

Facione, P. A., Facione, N. C., & Sanchez, C. A. (1994). Critical thinking disposition as a measure of competent clinical judgment: The development of the California critical thinking disposition inventory. *Journal of Nursing Education, 33*(8), 345-350.

Facione, P. A., Sanchez, C. A., Facione, N. C., & Gainen, J. (1995). The disposition toward critical thinking. *The Journal of General Education, 44*(1), 1-25.

Fikriyati, A., Agustini, R., & Suyatno, S. (2022). Pre-service science teachers' critical thinking dispositions and critical thinking skills. *Advances in Social Science, Education and Humanities Research.*

Giancarlo, C. A., & Facione, P. A. (2001). A look across four years at the disposition toward critical thinking among undergraduate students. *The Journal of General Education*, 29-55.

Gray, D. E. (2004). *Doing research in the real world*. Sage Publications.

Jiang, J. P., Hu, J. Y., Zhang, Y. B., & Yin, X. C. (2022). Fostering college students' critical thinking skills through peer assessment in the knowledge building community. *Interactive Learning Environments, 31*(10), 6480–6496. https://doi.org/10.1080/10494820.2022.2039949

Karagöl, İ., & Bekmezci, S. (2015). Investigating academic achievements and critical thinking dispositions of teacher candidates. *Journal of Education and Training Studies, 3*(4), 86-92.

Kennedy, M., Fisher, M. B., & Ennis, R. H. (1991). Critical thinking: Literature review and needed research. In L. Idol & B.F. Jones (Eds.), *Educational values and cognitive instruction: Implications for reform* (pp. 11-40*)*. Lawrence Erlbaum & Associates.

Kurfiss, J. G. (1988). *Critical thinking: Theory, research, practice, and possibilities* (Vol. 2). Association for the Study of Higher Education.

Misbah, M., Hamidah, I., Sriyati, S., & Samsudin, A. (2024). Study of critical thinking skill patterns in pre-service physics teachers through cluster analysis. *KnE Social Sciences*. https://doi.org/10.18502/kss.v9i19.16540.

Newton, D. P. (2008). *A practical guide to teaching science in the secondary school*. Routledge.

Niess, M. L. (2005). Preparing teachers to teach science and mathematics with technology: Developing a technology pedagogical content knowledge. *Teaching and Teacher Education, 21*(5), 509-523. DOI: 10.1016/j.tate.2005.03.006

Osborne, J. (2010). Science for citizenship. In J. Osborne & J. Dillon (Eds.), *Good practice in science teaching: What research has to say* (pp. 46-67). McGraw-Hill Education.

Partnership for 21st-century learning. (2007). *Framework for 21st Century Learning*.Retrieved 2-2-2019, from http://www.p21.org/our-work/p21-framework

Paulhus, D. L., & Vazire, S. (2007). The self-report method. In R.W. Robins, R. C. Fraley, & R. F. Krueger (Eds.), *Handbook of research methods in personality psychology (*pp. 224-239). Guilford.

Perkins, D. N., Jay, E., & Tishman, S. (1993). Beyond abilities: A dispositional theory of thinking. *Merrill-Palmer Quarterly, 39*(1), 1-21.

Pilevarzadeh, M., Shahrokhi, S., & Salari, S. (2015). The role of critical thinking in the educational progress of nursing university students. *International Journal of Current Research and Academic Review, 3*(5), 196-203.

Reffhaug, M. B. A., Andersson-Bakken, E., & Jegstad, K. M. (2024). Supporting primary students' critical thinking in whole-class conversations about sustainability issues. *Environmental Education Research*. https://doi.org/10.1080/13504622.2024.2309584

Saka, A. Z. (2009). Hitting two birds with a stone: Assessment of an effective approach in science teaching and improving professional skills of student teachers. *Procedia Social and Behavioral Sciences, 1*(1), 1533-44.

Sönmez, E., Memiş, E. K., & Yerlikaya, Z. (2021). The effect of practices based on argumentation-based inquiry approach on teacher candidates' critical thinking. *Educational Studies, 47*(1), 59-83.

Terenzini, P. T., Springer, L., Pascarella, E. T., & Nora, A. (1995). Influences affecting the development of students' critical thinking skills. *Research in Higher Education, 36*(1), 23-39.

Wan, Z. H., & Cheng, M. H. M. (2019). Classroom learning environment, critical thinking and achievement in an interdisciplinary subject: a study of Hong Kong secondary school graduates. *Educational Studies, 45*(3), 285-304

Welter, V., Emmerichs-Knapp, L., & Krell, M. (2023). Are we on the way to successfully educating future citizens? A spotlight on critical thinking skills and beliefs about the nature of science among pre-service biology teachers in Germany. *Behavioral Sciences*, 13. https://doi.org/10.3390/bs13030279.

Willingham, D. T. (2007). Critical thinking: Why is it so hard to teach? *American Educator, 31*,8-19. http://www.aft.org/sites/default/files/periodicals/Crit_Thinking.pdf

Yalçın, M., & Çelikler, D. (2011). The effect of computer-assisted applications in the teaching and learning of matter and heat subject. *Eurasia Journal of Mathematics, Science & Technology Education, 42*, 273-290.

Yeh, Y., & Wu, J. (1992). The relationship between critical thinking and academic achievement among elementary and secondary, school students. *Journal of and Psychology, 15*, 79–100.

Yorganci, S. (2016). Critical thinking dispositions of pre-service mathematics teachers. *Participatory Educational Research (PER), 3*(3), 36-46.

Ghana Journal of Education: Issues and Practices (GJE)
Vol. 10, December 2024, pp. 73 - 95, https://doi.org/10.47963/gje101865

"To be or not to be?" Reasons for Engaging in Commercial Sex Work in the Cape Coast Metropolis, Ghana

Kwame W. Nkrumah [1*], Joshua A. Omotosho[2*], Stephen Doe Fia[2] & Koawo A. Edjah[3]

1. Methodist Church Ghana, Cape Coast Diocese, Cape Coast, Ghana
2. Department of Guidance and Counselling, University of Cape Coast, Ghana
3. Department of Education and Psychology, University of Cape Coast, Ghana

[*]Corresponding authors's email address: atonku@gmail.com /jomotosho@ucc.edu.gh

Abstract

The practice of commercial sex work exists in many parts of Ghana. However, research is scanty on its nature and its associated activities. This study was designed to examine the reasons why commercial sex workers in the Cape Coast Metropolis of Ghana choose to venture into the sex business. Using a nested concurrent mixed method design, a sample of 364 participants (356 commercial sex workers and eight key persons) were reached for the study. A questionnaire and an interview guide were used to collect data for the study. Frequencies, percentages, and thematic analysis were used to analyze the data. The study found that most of the respondents ventured into the practice due to the socio-economic challenges confronting them and the need to make money to resolve those challenges. The study concluded that the commercial sex business in the study area is a thriving one because it is a business which does not demand any technical know-how or specialized skills and competencies to get engaged in. Furthermore, institutionalized systems and mechanisms, particularly enforcement of laws and regulations banning the practice were found to be woefully inadequate. The study recommended that key stakeholder institutions such as the Department of Social Welfare and Community Development, the Cape Coast Metropolitan Assembly, and Oguaa Traditional Council jointly formulate and operationalize interventional schemes and educational programmes to help effectively mitigate the practice.

***Keywords*:** Career counselling; commercial sex work; sexual adventurism; practice; socio-economic challenges; unemployment

Introduction

The practice of commercial sex work is a known non-legalized business in almost every part of the modern world, yet it thrives. It is patronized and popularized in different countries and cities despite the associated public condemnation and hazards. Typically, hazards such as severe health risks, kidnappings, forced enslavement, defrauding by clients and some personnel of the law-enforcement agencies, abuses – physical, sexual, and emotional – and in some instances murder for ritual purposes are associated with the practice. Ghana's case is not different. commercial sex work continues to attract appreciable patronage even in recent times for varied reasons. It is quite perplexing why, in spite of the numerous grave consequences on both the commercial sex workers in particular and the society in general, some female individuals would still venture into the practice. It is of utmost importance to investigate the real motivators and reasons that attract some individuals in the society to engage in commercial sex work in the Cape Coast Metropolis.

Statement of the problem

Commercial sex work has been an age-long issue of concern and contention confronting human societies globally and nationally. The situation is increasingly becoming complicated and sophisticated due to modernization and globalization (Ibrahim & Muhtar, as cited in Ezeh, Ugwu, & Ngwu, 2019). Globally, the practice is not restricted to one gender. However, female commercial sex workers are more common than their male counterparts (Greenberg, Bruess, & Oswalt, 2014). In Ghana, commercial sex workers are mostly females and their participation in the commercial sex business is not only local, but a cross-border phenomenon (Ansah, 2006; Ampofo, 2001). Within the confines of Ghana, particularly, the nation's capital, Accra, and in other Metropolitan cities such as Tema, Kumasi, Sekondi-Takoradi, Tamale, and Cape Coast, commercial sex work hotspots are dotted in several areas. Localities such as the Kwame Nkrumah Circle, Atembuda in East Legon, St Johns in Achimota, Kejetia in Kumasi, European Town and the Zenith area in Sekondi-Takoradi, Ashaiman in Tema, Kru Town and London Bridge in Cape Coast have become hot vicinities for commercial sex workers. The practice has become more rampant and is fast emerging as a source of cheap supply of female sex partners (*MyJoyonline.com*, 2013, Ansah, 2006).

Apparently, the Cape Coast Metropolis with its rich and enviable socio-cultural, historical, educational, and religeo-political heritage, coupled with its relatively sizeable geographical area, is often reported to have high rates of commercial sex workers, a situation that leaves much to be desired. The practice is considered to be widespread and lucrative in the Cape Coast Metropolis. It is quite surprising that the locality, widely reputed to be one of Ghana's tourism hubs and a citadel of formal Western education should be engulfed in commercial sex work and its allied activities. *MyJoyonline.com* (2013) reports that there is a steady increase in the number of young people aged between 13 and 19 years, involved in commercial sex work in the Cape Coast Metropolis.

Also, *Mynews.gh* (2017) reported that 'child prostitutes' offer free sex in Cape Coast. In the Cape Coast Metropolis, the practice is reported to be more popular in Brofoyedur, Ntsin, Anafo, Amanful, Gyeagyano, and Bakaano area in the main Cape Coast township and Abura, OLA Estates, and Kwaprow near the University of Cape Coast. Such disturbing reports need to be carefully and scientifically investigated to ascertain the reasons that motivate some individuals to venture into the practice in the Metropolis. For instance, there is a need to investigate whether these reports and claims are true and substantiated or not. Also, the issue of the real motivators leading the people into commercial sex work in the Cape Coast Metropolis need to be examined. For instance, could it be economic, psychosocial, socio-cultural, technological forces or some other variable? In short, it is of paramount importance to carry out investigations to identify the causes of the practice in the Metropolis.

The work of Oduro, Otoo, and Amoako-Asiama (2019) is both revealing and fascinating in that the authors' primary focus was on minors (persons below 18 years of age) as well as the challenges that researchers face when investigating minors who engage in commercial sex work. However, Oduro et al. (2019) did not investigate the reasons that motivate individuals to venture into commercial sex work in the Cape Coast Metropolis. Also, that research did not engage key stakeholders of the act in the Cape Coast Metropolis. The current study was therefore designed to fill the gaps identified above, especially, the reasons why individuals enter into commercial sex work in the Cape Coast Metropolis.

Literature review

Contemporary Conceptualisation and Trends of Commercial Sex Work

Commercial sex work persists in different forms and magnitude across the globe due to certain conditions (Sanders, O'Neill, & Pitcher, 2009). Commercial Sex Work carries certain severe health hazards and socio-cultural consequences that may negatively impact an individual's life (Balfour & Allen, 2014; Aveling, Cornish, & Oldmeadow, 2013; Kamise, 2013). The internet and perforation of new technologies such as mobile technology and social media platforms have increasingly become less cumbersome for individuals, not only to network, advertise and sell electronically and participate in commercial sex work but also practice it physically (Ezeh et al., 2019). Modern day attitudes towards the essence of sex and what constitute appropriate heterosexual behaviour and conduct to some extent have been shaped by the prevailing rapidly changing social and cultural contexts (Hayes, 2002, Busia as cited in Ampofo, 2001).

Causalities of Commercial Sex Work

Certain reasons, may be overtly or covertly, responsible for the existence of this phenomenon that has pervaded all the nations of the world. Balfour and Allen (2014) have posited that some individuals may consciously or unconsciously decide to venture into Commercial Sex Work as a means of livelihood or an avenue to make ends meet. In the same vein Hayes (2002) has pointed out that in the face of restricted choices in economic ventures, individuals can resort to commercial sex work as a way of refusing poverty, or a medium to resolve the threat to one's existence. Martin (2019) also underscores social and economic inequalities as one of the conditions that push people into the sex industry internationally.

Generally, while some females venture into commercial sex work out of desperation (Scorgie, Chersich, Gerbase, Lule, & Lo, 2012), others are kidnapped and forced into it (Dewey, Crowshurst, & Izugbara, 2019). Similarly, others enter into the practice as a result of curiosity and adventurism (Malarek, 2011) while still for some others, it is another stream of income to supplement their earnings from their regular employment (Malarek, 2011).

Social and economic disparities coupled with harsh socio-economic conditions affecting women and young persons do not only predispose them to Commercial Sex Work as an option for economic

liberation and prosperity but also cause them to actually venture into it (Scorgie et al., 2012; Nasir et al., 2010). Also, that some individuals venture into commercial sex work as a result of youthful exuberance, unguided desire for freedom and certain personal liberties, as well as the quest for power, fame, and popularity are noteworthy (Scorgie et al., 2012; Hayes, 2002). Furthermore, Darko (2010) which reiterates that the desires of individuals to liberate themselves from personal and social responsibilities, may cause them to troop to the streets and consequently fall victim to the practice.

The above notwithstanding, Commercial Sex Work is also seen as a perfect avenue to carry out certain illegal habits and unlawful practices such as the sale of illicit drugs, gambling, collection of seminal fluids as byproducts from sexual engagements for ritual purposes, and human trafficking (Hayes, 2002). Also significant is parental influences and peer pressure which cause some individuals to enter into Commercial Sex Work either to satisfy societal expectations or fulfill personal ambitions such as easy and quick accumulation of wealth and possessions, and obtaining of upward economic mobility (Ansah, 2016; Shively, Kliorys, Wheeler, & Hunt, 2012).

Manipulative and abusive relationships, defilement, incest, sexual molestations, domestic violence, and emotional deprivation especially during childhood, may result in homelessness with its resultant social evils such as inadequate social and financial support and lack of formidable nurture and guidance, all of which may easily entice young and youthful females into commercial sex work with a view to finding acceptance, solace, companionship, and safe shelter (Nasir et al., 2012).

Purpose of the Study

The purpose of the study was to ascertain the reasons which account for female persons' participation in Commercial Sex Work in the Cape Coast Metropolis.

Research Question

- What reasons motivate individuals to venture into Commercial Sex Work in the Cape Coast Metropolis?

Delimitation

The study was delimited to the following: only female Commercial Sex Workers aged at least, 16 years and above in the following selected localities in the Cape Coast Metropolis: Kwaprow,

Apewosika, Abura, Pedu, Antem, London Bridge, Coronation Street, Kru Town, Anafo, Ntsin, Amanful, and Brofoyedur. The reasons which motivate females in the said Metropolis to venture into commercial sex work was the main concern to the current researchers.

Theoretical Framework

Behaviour formation and disposition have been explicated by various theories, hence the theoretical framework for this current study is the social identity theory by Tajfel (1981a). The theory is a social psychological theory of intergroup relations and processes and holds social context as the main determinant of self-definition and behaviour (Ellemers & Haslam, 2011).

Research Methods

The research design adopted for the study was the mixed methods design, specifically, the nested concurrent design. The choice of the concurrent mixed methods design was based on the following reasons: firstly, it is adjudged to be particularly useful when investigating complex issues such as Commercial Sex Work where different levels of analysis are needed (Creswell, 2003). Secondly, it is suitable for getting rich and comprehensive data that capture both the "what and the why" of a phenomenon being studied, thereby leading to a richer understanding of the topic. A third reason for the choice of the nested concurrent design borders on its being time-efficient. As pointed out by Creswell and Clark (2017), since both types of data - quantitative and qualitative are collected concurrently, this design was able to help the researchers save time better than if a sequential mixed methods design had been used. For the current study, both the quantitative and the qualitative phases of the study were carried out at the same time but independent of each other. Also, both data were converged to provide a comprehensive analysis of the research problem. Lastly, more weight was given to the quantitative data than the qualitative (Creswell & Clark, 2017; Creswell, 2003).

Population

The target population for the study comprised all female Commercial Sex Workers in the Cape Coast Metropolis numbering over 1,950. However, the accessible population was 954 female Commercial Sex Workers. This number was obtained from the 2019 annual reports and statistical data of the West Africa Programme to

Combat AIDS & STI (WAPCAS), Ghana. Additionally, 16 key stakeholder institutions in the Cape Coast Metropolis were also included in the study. The following constitute the concerned stakeholder institutions: (1) Oguaa Traditional Council, Cape Coast Local Council of Churches, (2) the Girl Child Division of the Cape Coast Metropolitan Education Directorate, (3) Central Regional Coordinating Council, (4) Cape Coast Metropolitan Department of Social Welfare and Community Development, (5) Regional Directorate of Ghana AIDS Commission, (7) Cape Coast Metropolitan Assembly, (8) Department of Gender, (9) Ghana Health Service/the Ministry of Health, (10) Regional Peace Council, (11) Central Regional House of Chiefs, (12) Domestic Violence and Victim Support Unit (DOVVSU) of the Ghana Police Service, (13) a Household/Family Community of a commercial sex worker, (14) Central Regional Development Commission (CEDECOM), (15) Teacher Association Groups (GNAT/NAGRAT), and (16) Coalition of Media Houses in Cape Coast.

Limitations of the Study

The following were the limitations of the study:

1. Reaching out to the Commercial Sex Workers and engaging them for a scientific study was not without challenges since the practice is mostly carried out under the cover of darkness because it is illegal in Ghana. Some of the venues and times for engaging the respondents for data collection purposes were occasionally disrupted. As a result, some of the questionnaire failed to pass the eligibility for inclusion criteria for data processing. Additionally, the non-cooperative attitude of some of the respondents, particularly, quitting the data collection process unceremoniously to attend to their regular clients contributed to a shortfall in the sample size of 386.
2. The subjectivity of the respondents in responding to the questionnaire (enlargement or concealment) due to fear of full public disclosure and social desirability could not be completely ruled out neither were they underestimated.

Sample and Sampling Procedure(s)

Commercial sex workers and persons in key positions, heads of departments and coordinators, in key stakeholder institutions in the Metropolis were selected for the research.

Sampling of Research Participants

The sample size for the commercial sex workers was determined based on the estimates of Creswell (2012). Creswell stipulates a minimum sample size of 350 for a research survey (of which the current study is). However, the sample size for the commercial sex workers was increased by 36 to obtain 384 based on the assertion of Glenn (1992). Glenn asserts that it is necessary for sample sizes to be adjusted. The reason for the increase (upward adjustment) of 36 for the current study was to cater for possible fallouts that could possibly occur during the data collection stage on the parts of the participants due to the sensitive nature of the issue under investigation. Additionally, it was also to cater for any attritions during data processing stages which could result from incomplete responses and wrongful completion of the questionnaire. A multi-stage sampling technique comprising purposive sampling, simple random sampling, and convenience sampling was used in selecting the commercial sex workers.

It had been determined from the onset that 50% of the 12 Commercial Sex Work hotspots and 50% of the key stakeholder institutions would be the sources from which the participants would be drawn. Specifically, purposive sampling was used to select 50% of the 12 Commercial Sex Work hotspots in the Metropolis. Simple random sampling (lottery method) was used to select the resulting number six commercial sex work hotspots. These were (1) Kru Town, (2) Anafo, (3) Ntsin, (4) Abura, (5) Antem and (6) Coronation Street, from the 12 commercial sex work hotspot in the Metropolis. Convenience sampling was used to select Commercial Sex Workers from the six selected hotspots. Convenience sampling was used at this stage because it helped to include whoever happened to be available at the particular points in time among the already existing groups were used (Gay, Mills, & Airasian, 2009). This was facilitated through the assistance of WAPCAS, Ghana personnel, who by the nature of their work have well-established official regular and routine interactions with the community of the Commercial Sex Workers in the Metropolis.

Sampling of Key Stakeholder Institutions

As noted earlier, purposive sampling method was used to select key stakeholder institutions. Fifty percent of the 16 key stakeholder institutions (ie, eight) were sampled in the Metropolis for the research. Furthermore, simple random sampling (lottery method) was used to select the resulting eight key stakeholder institutions. Following are the eight selected key stakeholder institutions: (1) Oguaa Traditional Council, (2) the Girl Child Division of the Cape Coast Metropolitan Education Directorate, (3) Cape Coast Metropolitan Department of Social Welfare and Community Development, (4) Regional Directorate of Ghana AIDS Commission, (5) Department of Gender, (6) Ghana Health Service, (7) Domestic Violence and Victim Support Unit (DOVVSU) of the Ghana Police Service, and (8) a Household/Family Community of a commercial sex worker. Furthermore, it was purposive sampling that was used to select one person in a key position from each of the eight key stakeholder institutions. They had to be either heads of departments or coordinators of key stakeholder institutions. The principles of adequacy (DeVillis, 2017) and saturation (Baker & Edwards, 2012; Cobern & Adams, 2020) greatly informed the sampling of the participants for the qualitative component. In sum, the sample size used for the study was 364. It comprised 356 Commercial Sex Workers and eight persons in key positions in the selected key stakeholder institutions.

Data Collection Instruments

Two data collection instruments designed by the researchers were used for the study: a questionnaire titled "Nature and Practice of Commercial Sex Work Questionnaire" and an interview guide titled "Interview Guide on Nature and Practice of Commercial Sex Work". The development and construction of the two instruments used were guided by the objectives of the study, reviewed literature, and observations from the pilot testing and guided by the eight guidelines for scale construction as stipulated by DeVillis (2017). Both data collection instruments were administered directly to the participants on one-on-one basis.

The Questionnaire

The questionnaire had two sections: A and B and a total of 19 items. Section A - demographic characteristics of respondents (8 items) and Section B – reasons and motives for entering into commercial sex

work (11 items). The questionnaire was administered to only the Commercial Sex Workers.

The Interview Guide

Unlike the questionnaire, the interview guide was administered to only the selected persons in key positions in the key stakeholder institutions in the Metropolis. The interview guide had a brief introduction and a section on respondent's demographics as well as a section on questions that were asked. There were four main questions, however, follow up and/or subsidiary questions were asked as and when necessary to either elucidate some of the participant's responses or provided more clarity of some of their responses.

Pilot Testing

The questionnaire was pilot-tested in the Sekondi-Takoradi Metropolis in the Western Region of Ghana. Reasons for their choice include the fact that the two Metropolis are identical in many respects. For instance, both are coastal metropolis with well-patronized landing beaches and fishing harbours. Also, both cities are Regional Capitals, Metropolitan administrative headquarters, and political heads (assemblies) and have had extensive contacts with early European merchants in the then Gold Coast. Additionally, both Metropolis have a history of commercial sex work and activities dating back to the colonial era; active commercial sex hotspots still exist in them.

Thirty commercial sex workers participated in the pilot study on two different occasions with an interval period of two weeks. The same participants were used in both instances for pilot testing the questionnaire. The feedback from the pilot study greatly assisted in effecting changes and making corrections in the instrument. Ambiguities identified and poorly worded items that were not clearly understood, together with irrelevant items that readily became exposed during the pilot study were carefully and appropriately dealt with. The pilot study provided useful information about deficiencies and elicited appropriate suggestions for improvement and modifications which ensured the content validity of the instrument. It also afforded first-hand experience and direction which greatly facilitated the smooth running and success of the main study (Creswell, 2012; Frankel & Wallen, 1993).

Validity and Reliability of the Research Instruments

The validity of the instruments was determined by five experienced professionals and three experts in the field of instrument development who thoroughly scrutinized and vetted them. The content validity of the instrument was determined by a team of three experts in the University of Cape Coast. The expert views and opinions of these were sought because the validity of an instrument is improved through expert judgment (DeVon et al., 2007). McDonald's omega or coefficient omega and the test-retest methods (DeVellis, 2017) helped in determining the internal consistency of the questionnaire. The reliability coefficients for sections A and B of the questionnaire ranged from .78 to .85 thereby suggesting a good level of reliability (Pallant, 2004).

Ethical Considerations

Ethical clearance was obtained from the Institutional Review Board, University of Cape Coast, Cape Coast. Accessibility to the commercial sex workers in the Cape Coast Metropolis was arranged for and facilitated by WAPCAS Ghana with direct assistance from the office of the Ghana AIDS Commission, Central Regional Secretariat and the project officer for WAPCAS, Ghana, Central Regional Office. The officer-in-charge together with the peer educators and para-legal personnel fully assisted in the mobilization of the commercial sex workers within the selected sites and coordinated all the arrangements and processes prior to and during the administration of the questionnaire. They also facilitated all the arrangements for the actual administration of the data collection activities as well as providing other logistical support that resulted in smooth field research activities.

Respondents for both the quantitative and qualitative components were duly informed about the purposes of the study. Explanations on their selection and the procedures involved were also clearly communicated to them. Informed consent was also sought after they had been adequately briefed about the goals and benefits of the study. Participants were also informed that they could opt out of the exercise at any time if there was a strong need for that step to be taken. Opportunity was also given to commercial sex workers who voluntarily wanted to undergo counselling for assisting them to make certain informed decisions and life choices, especially their future lives. Research participants were given GHc20.00 (3.45 USD) each as

stipends to compensate them for their time. Finally, all the participants were assured of anonymity and confidentiality of their responses.

Data processing and analysis

The study examined the reasons which motivate some females in the Cape Coast Metropolis into the practice. The research question had both quantitative and qualitative components. Hence, they were processed and analyzed using both quantitative and qualitative analytical procedure. The quantitative data were processed with the assistance of the SPSS software version 25.0. The same SPSS was also used in carrying out the descriptive statistics. The descriptive statistics, frequencies and percentages, were used in the analysis of data and discussions thereof. In each case decisions and conclusions were based on simple majority of responses. In addition to the quantitative analysis, data collected from the persons in key positions in the key stakeholder institutions via interviews were transcribed and analyzed using thematic analysis as suggested by Braun and Clarke (2006). Both quantitative and qualitative data were integrated during the data analysis stage.

Results

Demographic characteristics of female Commercial Sex Workers

Table 1: Age distribution of Commercial Sex Workers

Age	Frequency	Percentages (%)
Below 18 years	6	1.7
18 – 22 years	88	24.7
23 – 27 years	103	28.9
28 – 32 years	115	32.3
33 – 37 years	36	10.1
38 years & above	8	2.2
TOTAL	356	100.0

Source: *Field survey (2019)*

A total of 356 commercial sex workers were enrolled in the study as depicted by table 1 above. Their demographic characteristics are as follows: majority of the participants were between the ages of 28-32 years (n= 115 or 32.3%) followed by those between the ages of 23-27 years (n=103 or 28.9%), between ages 18-22 years (n=88 or 24.7%) and few (n=06 or 1.7%) below 18 years. The results did portray

vast majority of the participants in their youthful and most productive stages of life.

Distribution of persons in key positions by gender and institution

The eight persons selected from the key stakeholder institutions that were interviewed for the study were persons who have a great deal of awareness of commercial sex work, its related activities, and certain consequential outcomes of the practice within the Cape Coast Metropolis. Per table 2, the participants comprised five males and three females and five were from government institutions: Department of Gender, Cape Coast Metropolitan Directorate of Education, Department of Social Welfare and Community Development, Ghana AIDS Commission, and DOVVSU of the Ghana Police Service. The remaining three were selected from Oguaa Traditional Council, WAPCAS (an NGO) and a Household/Family Community of a commercial sex worker.

Table 2: Persons in Key in Positions: Their Gender and Institution

Designation	**Group**	**Freq.**	**%**
Gender	Male	5	62.5
	Female	3	37.5
	Total	*8*	*100.0*
Institution	Government Institution	5	62.5
	Traditional Authority	1	12.5
	NGO	1	12.5
	Household/Family Community	1	12.5
	Total	*8*	*100.0*

Source: *Field survey (2019)*

The views of the persons in key stakeholder institutions were sought to either corroborate or disprove the responses of the commercial sex workers obtained from the administration of the questionnaire to the Commercial Sex Workers in Cape Coast Metropolis.

Commercial Sex Workers' Reasons for Entering into Commercial Sex

As presented in Table 3 below, majority (n=235 or 66%) of the respondents reported that no relative or family member is currently engaged in commercial sex work, while the remaining 121 (or 34%) reported otherwise. Also, majority (n=194 or 54.5%) of the respondents reported that no relative or family member had ever been engaged in the practice; however, remaining 162 (45.5%) responded in the affirmative. Most (n=220 or 61.8%) of the respondents indicated that they earned between GH₵ 201.00 – 500.00 per week from the practice, 64 (18%), however, earned below GH₵ 200.00

Table 3: Reasons for Engaging in Commercial Sex Work

Question(s)	Response(s)	Freq.	%	Rank
Is any of your relatives currently involved in CSW?	Yes	121	34.0	2nd
	No	235	66.0	1st
	Total	***356***	***100.0***	
Has any relative of yours ever been involved in CSW?	Yes	162	45.5	2nd
	No	194	54.5	1st
	Total	***356***	***100.0***	
How much do you make from CSW per week?	Below GH₵ 200.00	64	18.0	2nd
	GH₵ 201.00 – 500.00	220	61.8	1st
	GH₵ 501.00 – 800.00	35	9.8	3rd
	GH₵ 801.00 – 1100.00	16	4.5	4th
	GH₵ 1101.00 – 1400.00	14	3.9	5th
	Above GH₵ 1400.00	7	2.0	6th
	Total	***356***	***100.0***	
Do you have persons who depend on your income from commercial sex work?	Never	69	19.4	2nd
	Occasionally	57	16.0	3rd
	Almost every time	39	11.0	4th
	Every time	191	53.7	1st
	Total	***356***	***100.0***	
Who introduced you into commercial sex work?	Friends	325	91.3	1st
	Siblings	16	4.5	2nd
	Parent/guardian	8	2.2	3rd
	Social media	1	0.3	6th
	Television	2	0.6	5th
	Video/movies	4	1.1	4th
	Total	***356***	***100.0***	

Which of the following mostly attracts you into CSW?	Curiosity	7	2.0	
	Fun/amusement	22	6.2	3rd
	Companionship	4	1.1	5th
	Pressure	3	0.8	6th
	Money-making	256	71.9	1st
	Family demands	12	3.4	4th
	Source of livelihood	52	14.6	2nd
	Total	***356***	***100.0***	
What rewards do you get from engaging in commercial sex work?				
	Money	334	93.8	1st
	Material gains	4	1.1	
	Sexual pleasure	7	2.0	3rd
	Emotional comfort	1	0.3	5th
	Fame/popularity	2	0.6	4th
	Job satisfaction	8	2.2	2nd
	Total	***356***	***100.0***	

Source: *Field survey (2019)*

Respondents (n=191 or 53.7%) further reported that they have people who depend on their income from commercial sex work every time. An overwhelming majority (n=325 or 91.3%) of the respondents indicated they were introduced into the practice by their friends.

A majority of the respondents (n=256 or 71.9%) massively indicated that they were mostly attracted by money, and similarly, money was the reward they get for engaging in commercial sex work (n = 334, 93.8%). The quantitative data revealed family background, economic needs, peer pressure, financial demands of family, and finding a source of livelihood as the major reasons motivated some females to venture into commercial sex work in the Cape Coast Metropolis.

Results of the Interviews

Responses from the qualitative components of the study clearly aligned with those of the quantitative because they both revealed similar reasons which motivate some individuals venture into the practice. Generally, the respondents were of the view that *socio-economic hardships, peer pressure and parental influence* are among the major reasons which push people into Commercial Sex Work. The following are some of the extracts from the responses of the participants to that effect.

"Basically, it all boils down to economic hardships, the need to survive and to make ends meet. If you take ten (10) people involved in sex work and ask them why they are in it, they will all say because of money. As normal human beings they want to do something to survive . . .". (GACOH)

"The basis for it is poverty, poverty on the part of parents, because there aren't many job opportunities here…mothers are forced into commercial sex work. . .". (TCOM)

"…from my work space, one of the biggest things that I will cite as contributing to commercial sex work are financial problems and financial burden . . .". (GRDO)

"Accommodation is a very big issue in the beach communities in the Cape Coast Metropolis. Inadequate accommodation for families, for example a man, wife and adult children occupying and sharing one bedroom. For the man to have space for intimacy with the wife the way he wants it, may result in either pushing the children out into the streets or asking them to find a place elsewhere to sleep.... sleeping on the streets… causes them to fall prey to the trade ..... This is common in Amanful, Brofoyedur, Anafo, Ntsin, and other places". (MCOWS)

"When they see their peers and the things they are using (flashy life styles) such as phones and dresses, and want to have same, and they get to know they have been able to acquire them through the money accrued from sex work, they are enticed to do same . . .". (WCCM)

"…when they see everybody doing it and see the trade going on all around them, they naturally become enticed to commercial sex work." (MCOWS)

"…if you want to see the end of your wife, look at her mother. So, you see, some children have gotten involved due to their parents' participation in the trade". (EGXW)

"Some of the adult sex workers have also had some of their children introduced to the commercial sex work. … by copying or emulating what their parents do". (TCOM)

Discussion

The purpose of this study was to investigate reasons for entry into commercial sex work. The results of the study (both quantitative and qualitative components) revealed that certain reasons account for entry into Commercial Sex Work. The result of the study pointed to the following-economic hardships, parental influence, peer pressure, and accommodation challenges.

Key among the reasons for entry into commercial sex work comprise poverty, lack of employment opportunities, and peculiar personal circumstances such as lack of requisite qualification and employable skills. For instance, 71.9% of the respondents clearly indicated that they were mostly attracted by monetary considerations into the sex work, while 93.8% indicated monetary gains as the reward they obtain from engaging in commercial sex work. The money motive may generally arise from difficult and challenging life circumstances confronting these individuals in the society. Equally important from the finding of the study is that, 53.7% of the respondents reported they had some persons who depend on their income from sex work every time. Additionally, 61.8% reported they earned a substantial income (201.00 - 500.00) per a week from the practice which goes a long way to boost their financial capabilities. Thus, the socio-economic reasons appeared as compelling circumstances attracting people into the commercial sex work.

Another reason which motivates females to venture into the practice is peer pressure. The result of the study revealed that an overwhelming majority (91.3%) of the respondents admitted, entered into the practice not on their own accord. They were influenced by their friends or peers. This finding, to a large extent, amplifies the potency of peer pressure on individuals when it comes to decision-making and, in this case, entry into commercial sex work. Surprisingly, both data collected from the commercial sex workers and key stakeholders attest that peer pressure is one of the forces driving females into the commercial sex enterprise. The study showed that socio-economic reasons drive people into commercial sex work, probably as an easy and readily available way to make ends meet.

These findings commensurate with some previous studies (Nasir et al., 2010; Scorgie et al., 2012; Greenberg 2014; Martin 2019) which identified socio-economic, food insecurity, poverty, lack of

shelter and socio-economic inequalities as some of the reasons why some individuals enter into commercial sex. The findings of Nasir et al. (2010) indicated that one of the few crucial conditions that motivate women to venture into sex work is socio-economic reasons. Additionally, in a study carried out in Malaysia on Muslim and non-Muslim women, sex workers reported that low socio-economic conditions are a contributory factor responsible for their entry and participation in sex work. Greenberg et al. (2014) reveal that women go into the sex trade mainly to make money in spite of other conditions that may motivate them. Martin (2019) also underscored social and economic inequalities as one of the conditions that push people into the sex industry internationally.

Also, the findings of this current study supports that of Malarek (2011), and Platt et al. (2011), who reported that some persons enter into sex work as a means of survival, money-making, and an attempt to end poverty. Malarek (2011), indicated that many enter into commercial sex work not due to chance but for the paramount need to survive. On the other hand, this current study contradicts the findings of a study conducted by Ansah (2006) who documented that women go into commercial sex work due to shortage of available jobs because these women were uneducated. Based on the findings of the study, it can be said that poor socio-economic conditions are among the variables responsible for entry into and participation in commercial sex work.

The social identity theory by Tajfel (1981b) provided the theoretical framework for this study on two grounds. Firstly, it provides a framework useful for conceptualising the way of behaviour and therefore assists to explicate certain behaviours of commercial sex workers. For instance, behaviours such as group commitment and loyalty, compliance and attractions. Secondly, the findings of this study, the causalities for venturing into commercial sex work: socio-economic reasons, parental influence, and peer pressure, are clearly elucidated by the postulations of the social identity theory. According to the theory, social context is the main determinant of self-definition and behaviour.

Conclusion

The study concluded that commercial sex work in the Cape Coast Metropolis is a thriving one and the female commercial sex workers ventured into the practice due to reasons such as socio-economic hardships, accommodation challenges, peer pressure, and parental influences.

Recommendations

1. The Girl Child Division of the Cape Coast Metropolitan Education Directorate in collaboration with the Guidance and Counselling Center of the University of Cape Coast, should run relevant educational and skills training courses on regular basis for persons of school-going age to empower them not to ventured into the practice. Such an initiative will also equip and empower them to venture into worthwhile employment for self-advancement and fulfilment.
2. The Oguaa Traditional Council in conjunction with the Guidance and Counselling Department of the University of Cape Coast should provide community-based guidance and counselling services in the Metropolis to assist Commercial Sex Workers who desire and need help to exit from the practice and become well-rehabilitated for easy reintegration into meaningful social and public life.
3. It is recommended that to effectively mitigate the practice in the Cape Coast Metropolis, the Department of Gender should role out carefully planned and well-coordinated social intervention schemes and strategies, especially at the Commercial Sex Work hotspots and community-based outreach centers to assist the commercial sex workers to make informed decisions and choices to facilitate responsible life choices and healthy living.
4. The Oguaa Traditional Council should engage the media houses and civil society organizations in the Metropolis to include regular public education, advocacy, and sensitization drive on the practice in the Cape Coast Metropolis into their corporate social responsibility agenda and initiatives to help effectively mitigate the spread of the practice.
5. Furthermore, the Cape Coast Metropolitan Education Directorate should provide their Schools' Guidance and Counselling Co-coordinators opportunities to undergo regular

refresher courses, sensitization and capacity-building workshops on commercial sex and its related issues. Such exposures will enable them become acquainted with modern trends in the commercial sex enterprise so that they in turn can provide the necessary guidance and counselling services to their pupils and students to assist them not to fall victims to the attractions and enticements of commercial sex.

6. The Department of Social Welfare and Community Development together with the Oguaa Traditional Council should collaborate with the University of Cape Coast through its Guidance and Counselling Department to procure logistical, technical and financial resources to undertake a comprehensive needs assessment, especially of commercial sex workers in the Metropolis. The objective is to help provide such individuals the platform to discover and appreciate their real life needs and to be guided to sharpen their skills and well-utilise their innate potentials and capabilities for productive social and economic lives.

References

Ampofo, A. A. (2001). The sex trade, globalization and issues of survival in Sub-Saharan Africa. *Research Review NS, 17*(2), 27-43.

Ansah, B. O. (2016). *A study of the lived experiences of selected brothel-based sex workers in Kumasi*. [Unpublished doctoral thesis] Department of Public Health, University of Ghana, Legon, Accra.

Ansah, N. (2006). Structural relations of sex trade and its link to trafficking. *Empowering Women for Gender Equity 1*(2), 100-106. https://www.jstor.org/stable/4066739.

Aveling, E. L.; Cornish, F.; & Oldmeadow, J. (2013). Diversity in sex worker's strategies for the protection of social identity: Content, context, and contradiction. In W. Brady (Ed.). *Symbolic transformation: The mind in movement through culture and society. Cultural dynamics of social science*, (pp. 302-322). Routledge.

Baker, S. E.; & Edwards, R. (2012). *How many qualitative interviews is enough? Expert voices and early career reflections on sampling and cases in qualitative research*. National Centre

Research Methods Review Paper. https://eprints.ncrn.ac.uk/2273/4/ how_many_i nterviews.pdf

Balfour, R.; & Allen, J. (2014). A review of the literature on sex workers and social exclusion. https://www.academia.edu.

Braun, V.; & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. https://www.eprints.uwe.ac.uk/11735.

Cobern, W. W.; & Adams, B. A. J. (2020). When interviewing: How many is enough? *International Journal of Assessment Tools in Education*, *7*(1), 73-79.

Creswell, J. W.; & Clark, V. L. P. (2017). *Designing and conducting mixed methods research* (3rd ed.). Sage Publication Inc.

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Pearson Education.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). SAGE Publications Inc.

Darko, A. (2010). *Faceless*. Sub-Saharan Publishers.

DeVillis, R. F. (2017). *Scale development: Theory and applications*. SAGE Publications, Inc.

DeVon, H. A., Block, M. E., Moyle-Wright, P., Ernest. D. M., Hayden, S. J., Lazzara, D. J. et al., (2007). A psychometric toolbox for testing validity and reliability. *Journal of Nursing Scholarship, 39(2), 155-164.*

Dewey, S.; Crowhurst, I.; & Izugbara, C. (2019). Globally circulating discourses on the sex trade: A focus on three world regions. In S. Dewey, I. Crowhurst, & C. Izugbara. (Eds.). *Routledge international handbook of sex industry research* (pp. 366-378). Routledge Taylor & Francis Group.

Ellemers, N. & Haslam, S. A. (2011). Social identity theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.). *Handbook of theories of social psychologies* (pp. 379 - 398). SAGE.

Ezeh, V. C. ; Ugwu, J. I. ; & Ngwu, F. E. (2019). Men, culture, modernity, and sex work in south eastern Nigeria. In S. Dewey, I. Crowhurst, & C. Izugbara. (Eds.). *Routledge international handbook of sex industry research* (pp. 366-378). Routledge Taylor & Francis Group.

Gay, L. R., Mills, G. E., & Airasian, P. (2009). *Educational research* (9th ed.). Pearson Education, Inc.

GhanaWeb (2019, April 24). 'Ashaiman sex workers selling sperms of clients: Soldier blows alarm'. https://mobile.ghanaweb.com.

Greenberg, J. S., Bruess, C. E., & Oswalt, S. B. (2014). *Exploring the dimensions of human sexuality* (5thed.). Jones & Bartlett Learning.

Hayes, B. (2002). Prostitution (Female): Providing sexual services in return for a fee. In C. Wesley, D. Capps, R. Gill, A. Obholzer, R. Page, D. D. Hunsinger, & R. Williams (Eds.). *The new dictionary of pastoral studies* (pp. 286-287). William B Eerdmans Publishing.

Kamise, Y. (2013). Occupational stigma and coping strategies of women engaged in the commercial sex industry: A study on the perception of Kyaba-Cula Hostesses in Japan. *Sex Roles*, *69*(1), 42-57.

Malarek, V. (2011). *The Natashas: The horrific inside story of slavery, rape, and murder in the global sex trade*. Skyhorse Publishing Inc.

Martin, A. (2019). Sex trading in neighbourhood context: Facilitation, violence, spectrum of young women's exploitation. In S. Dewey, I. Crowhurst, & C. Izugbara. (Eds.). *Routledge international handbook of sex industry research*. (pp. 431-422). Routledge Taylor & Francis Group.

Myjoyonline.com (2013, January 11). Teenage sex increases in Cape Coast. http://www.Myjoyonline.com//news/teenage-sex-work-increase-in-cape-coast.

Mynews.gh (2017, June 17). Child prostitutes offer free sex in Cape Coast. http://www.mynews.com/child-prostitutes-offer-free-sex-in-cape-coast/

Nasri, R., Zamani, Z. A., Ismail, R., Yusooff, F., Khairaddin, R., & Mohamad, L. Z. (2010). Self-esteem and cognitive distortion among women involved in prostitution in Malaysia. *Procedia Social and Behavioral Sciences*, *5*, 1939-1944. http://doi: 10.1016 /j.sbspro .2010.07.392

Pallant, J. (2004). *SPSS survival manual: A step by step guide to data analysis using SPSS for windows (Versions 10-11)*. McGraw-Hill Education.

Platt, L., Grenfell, P., Bonell, C., Creighton, S., Wellings, K., Parry, J., & Rhodes, T. (2011). Risk of sexually transmitted infections and violence among indoor-working female sex workers in London: The effect of migration from Eastern Europe. *Sexually Transmitted Infections*, *87*(5), 377-384.

Sanders, T.; O'Neill, M. O.; & Pitcher, J. (2009). *Prostitution: Sex work, policy, and politics*. SAGE.

Scorgie, F. ; Chersich, M. F. ; Ntaganira, I. ; Gerbase, A. ; Lule, F. ; & Lo, Y. R. (2012). Socio-demographic characteristics and behavioural risk factors of female sex workers in sub - Saharan Africa: A systematic review. *AIDS and Behaviour*, *16*(4), 920-933.

Tajfel, H. (1981a). *Human groups and social categories: Studies in social psychologies*. Cambridge University Press.

Tajfel, H. (1981b). *Human groups and social categories identities*. Cambridge University Press

Ghana Journal of Education: Issues and Practices (GJE)
Vol. 10, December 2024, pp. 96-116, https://doi.org/10.47963/gje101866

Effect of Big Five Personality Types on Students Learning Outcomes among Senior Secondary Schools in Edo State, Nigeria

Yvonne Ododo Osunde* & Elizabeth O. Egbochuku

Department of Educational Evaluation and Counselling Psychology,
University of Benin, Benin City

*Corresponding author's email address: Yvonne.osunde@uniben.com

Abstract
This study researched the relationship between personality type and learning outcomes among senior secondary school students in Edo State, Nigeria. It sought to show how each of the big five personality dimensions of Openness, Conscientiousness, Extraversion, Agreeableness, and Introversion would predict cognitive, psychomotor, and affective learning outcomes. This was a quantitative study. The design used was a survey involving 117 secondary school students and 16 teachers. The main instrument used was a questionnaire. Multiple regressions was performed when analyzing the collected work. Results showed that openness to experience, extraversion, introversion are significantly positively associated with cognitive and affective learning outcomes, while conscientiousness is significantly negatively related to cognitive learning outcome, and agreeableness is significantly negatively related to the cognitive learning outcome but is not significantly related to psychomotor and affective outcomes. These results appear to support the previous finding that personality type makes a remarkable difference in the reasons for the learning outcomes among secondary school students. Educators and policymakers need to consider directing their programmes toward personality-related interventions, including personality tests for the students, as these may play a role in enhancing the student learning outcomes. Personalized learning approaches should be provided based on the student's personality type, and self-awareness about personality weaknesses and strengths. Future research should find out how the longitudinal effects of personality on the learning outcome could be influenced by personality in terms of some subjects or skills.

***Keywords*:** Affective domain; cognitive domain; learning outcomes; personality type; psychomotor educational objectives

Introduction

The achievement of learning outcomes is a major aim in educational landscape, especially for the fact that learning outcomes ensure that students acquire relevant knowledge, competencies, and attitudes towards the achievement of success in their future endeavours (Atela 2023; Yu, 2021). In that case, learning outcomes specify what knowledge, skills, and attitudes students will have to acquire as a result of the learning process (Aydemir & Bayram, 2022). The basic learning outcomes for this level of secondary school entail cognitive, psychomotor, and affective domains, which allude to knowledge and understanding, skills and abilities, attitudes, and values respectively (Brandt, Lechner, Tetzner, & Rammstedt, 2020).

It has been shown that students' learning outcomes vary over their different personality types (Eliezer & Marantika, 2022). The ways in which students achieve learning outcomes, or go about their learning effectively, can be predicted by individual personality traits such as openness to experience, conscientiousness, extraversion, and agreeableness (Atela, 2023). Introversion is also another vital dimension of personality that influences learning outcomes (Aydemir & Bayram, 2022). Openness to experience is concerned with being curious, having an exposed mindset, and willingness to accept ideas (Yu, 2021). Students who are rated high in terms of openness tend to achieve good learning outcomes, especially in areas that deal with thinking critically. Conscientiousness is concerned with being organized, showing responsibility, and purposefulness (Atela, 2023). It is reported that conscientious students perform better in academic tasks requiring planning and self-discipline (Eliezer & Marantika, 2022). Extraversion refers to the degree by which students are outgoing, sociable, and assertive (Aydemir & Bayram, 2022). On the other hand, introversion alludes to the degree by which students are reserved, reflective, and independent. While both extraversion and introversion can influence learning outcomes, extraverted students do better in group work and other social activities, and the best are introverted students who are independent in their studies and quiet in reflection.

Previous studies done within this stream of research focus on various aspects of personality and learning styles as they link to academic performance; however, they all have a limitation in the Big Five model, learning outcome, and geographical scope that this

research covers. Studies such as Eliezer and Marantika (2022), as well as Atela (2023) did not focus more on the big-5 personality traits. Although Yu (2021), and Ayademir and Bayram (2022) attempted to, but they were superficial. Brandt et al. (2020) focused a reasonable level of coverage to the Big Five model in terms of academic performance, but the study was not with respect to Nigerian students.

On the note of learning outcomes, none of these studies explicitly traces its work back to cognitive, psychomotor, and affective learning outcomes. Yu, (2021), is closest to this with the examination of the effectiveness of online learning but fails to mention what type of learning outcomes. The other studies talk of academic performance, grades, test scores, but none of these, linked them up with the types of learning outcomes. This creates a lacuna about how personality traits and learning styles influence various aspects of learning.

Geographically, none of the studies represent schools in Edo State, Nigeria. The studies were based in Germany, Kenya, and an unspecified locations. This lack of representation creates a geographical gap for research in contexts like Nigeria. This was done to assess the effect of personality type on the learning outcomes of students in the subjects of English Language and Mathematics at senior secondary school level in IkpobaOkha Local Government Area of Edo State, Nigeria.

Objectives of the Study

The main of objective of the study is to examine the effect of personality types on the learning outcomes of secondary school students. Specifically, the study seeks to:

1. determine the correlation of openness to experience with the learning outcomes (such as cognitive, psychomotor, and affective) of secondary school students in Edo State;
2. determine the correlation of conscientiousness with the learning outcomes (such as cognitive, psychomotor, and affective) of secondary school students in Edo State;
3. ascertain the influence of extraversion with the learning outcomes (such as cognitive, psychomotor, and affective) of secondary school students in Edo State;
4. examine the relationship between agreeableness with the learning outcomes (such as cognitive, psychomotor, and affective) of secondary school students in Edo State; and

5. determine the effect of introversion on the learning outcomes (such as cognitive, psychomotor, and affective) of secondary school students in Edo State.

Research Hypotheses

The following 5 null hypotheses were formulated:

1. There is no significant relationship between openness to experience and the learning outcomes (such as cognitive, psychomotor, and affective) of secondary school students in Edo State;
2. There is no significant relationship between conscientiousness and the learning outcomes (such as cognitive, psychomotor, and affective) of secondary school students in Edo State;
3. There is no significant relationship between extraversion and the learning outcomes of secondary school students in Edo State;
4. There is no significant relationship between agreeableness and the learning outcomes (such as cognitive, psychomotor, and affective) of secondary school students in Edo State; and
5. There is no significant relationship between introversion and the learning outcomes (such as cognitive, psychomotor, and affective) of secondary school students in Edo State.

Literature Review

Learning outcomes hold a central part in gauging the effectiveness of the educational process. They define what learners should know and the skills and abilities they are supposed to acquire after going through a learning experience (Andreev, 2024; South Caroline University, 2024). This is quite central in designing curricula and assessment, but the definition of this concept has slight differences in different contexts of education. One definition of learning outcomes refers to statements of what learners should know, be able to do, and value at the end of a learning experience or sequence of learning experiences (Biggs & Tang, 2011; Denise & Jane, 2016). This definition insists on outcomes that are observable and measurable, concentrating on student performance rather than instructor activities. Another perspective conceptualises learning outcomes as clear, observable, and measurable statements articulating what learners

should know, be able to do, and be able to value because of completing a learning experience.

The definition really places a premium on clarity and specificity in outcome statements so that both the instructor and the student are very clear about expectations. The learning outcome is described, from a broader perspective, as specific descriptions of knowledge, skills, or expertise that a student will consequently gain from the learning activity (Andreev, 2024). This definition places more focus on the role outcomes play in guiding the choice of teaching and learning activities and assessing the achievement of students. Although it appears that the definitions are not alike, at surface level, they however share common themes of student-centeredness, measurability, and focus on learning results. They act as future direction for students and teachers, and serve as guide in developing curriculum, instructing, and assessing students. Learning outcomes can be categorized into various forms, each representing different aspects of student development. On a general scale, secondary school students' learning outcomes fall into cognitive, psychomotor, and affective learning outcomes.

These outcomes are inclined to the intellectual development of the learner and emphasize knowledge acquisition, understanding, and critical thinking. They normally fall under Bloom's taxonomy (1956), which classified cognitive skills into levels ranging from basic recall to complex evaluation. They are cognitive learning outcomes, which cover various intellectual abilities; knowledge, dealing with recalling facts, terms, theories; comprehension, which is concerned with understanding information; application, which is demonstrating the use of knowledge in new contexts; analysis, that is breaking down information to explore relationships between parts; synthesis, which denotes combining information to create new ideas or products; and evaluation, which entails making judgments about the value of information or ideas.

These outcomes concentrate on the development of physical skills and coordination. They are commonly found in extra-curricular activities such as sports, music, and vocational training. Examples include basic motor skills, which include fundamental movements like walking, running, and jumping; complex motor skills, which include advanced skills requiring precision and coordination, such as playing an instrument or performing surgery; and physical fitness, which includes development of endurance, strength, and flexibility.

These outcomes relate to attitudes, values, and emotions. They often involve changes in beliefs, feelings, and behaviours. They involve affective learning outcomes, which are the development of attitudes, values, and emotions. Receiving, which is awareness of stimuli and a willing to attend; responding, meaning active participation overt behaviour; valuing, attaching worth or importance to objects, people, or ideas; organizing, relating values to others forming a value system; and characterizing by value, consistent behaviour considering developed value system.

Personality on the other hand, is a dynamic system that influences an individual's thoughts, feelings, and behaviours while at the same time being influenced by his or her own experiences, social context, and culture. Many theories vaunt this dynamism in personality, and particularly, the numerous interactions between individual differences and the environment. According to Siegel (2017), "an emergent property of the complex interactions between an individual's genes, brain, and environment, which shapes their unique patterns of thought, emotion, and behaviour" (p. 25). In fact, according to Siegel's definition, the highest emphasis is given to neurobiology and interpersonal relationships on the way to forming personality. Therefore, these definitions implied that personality is a dynamic, complex, and unique system which originates from interactions between the biological, psychological, and social factors of an individual, influences its thoughts, feelings, and behaviours and keeps on changing across the entire course of life.

Studies show that there are five major personality typologies of secondary school students. They include openness to experience, conscientiousness, extraversion, agreeableness, and introversion. These are discussed below.

Openness to Experience

Openness to experience will describe the degree to which a person is open to new ideas, experiences, or varied points of view. As such, this normally turns out to be a welcomed approach towards new approaches of learning or topics. As John and Srivastava (1999) noted, an open person is characterized by being curious, imaginative, and creative. They simply have a general liking to experience many things and gain knowledge (Feist, 2013). In the academic domain, openness to experience may enhance deeper learning, better critical thinking, and

a greater level of innovation since the student is likelier to venture into newer ideas and newer approaches (Kashdan & Ciarrochi, 2013).

Conscientiousness

Conscientiousness refers to the individual differences in people regarding organization, self-discipline, and responsibility reflected in time management and homework submission (Tackett, Lahey & Waldman, 2017). Conscientious students are more goal-directed, plan and organize their tasks better, and meet deadlines without failure. As Yu (2021) notes, in an academic perspective, conscientiousness is a prime characteristic in driving towards success since it keeps the student always on top of all assignments, be effective in time management, and maintain high productivity levels.

Extraversion

Extraversion is one's level of class participation and engaging in group activities (Aydemir & Bayram, 2022). People scoring high in extraversion are likely to be outgoing, talkative, and assertive; therefore, they are commonly found assuming leadership roles within groups. Extraverted students participate more in class discussions, engage in group projects, and seek social interaction with peers. However, too much extraversion can lead to distractions and a lack of focus on individual tasks due to increased engagement in social events.

Agreeableness

Agreeableness refers to the quality of interactions with peers and teachers: it is about teamwork, conflict resolution, and empathy (Graziano & Tobin, 2017). Agreeable people are more cooperative, tender-minded, and sensitive to others' needs, usually rating harmony and social cohesion at the top of their lists (Yu, 2021). Agreeableness can foster favourable peer and teacher relations, efficient teamwork, and a good school learning environment.

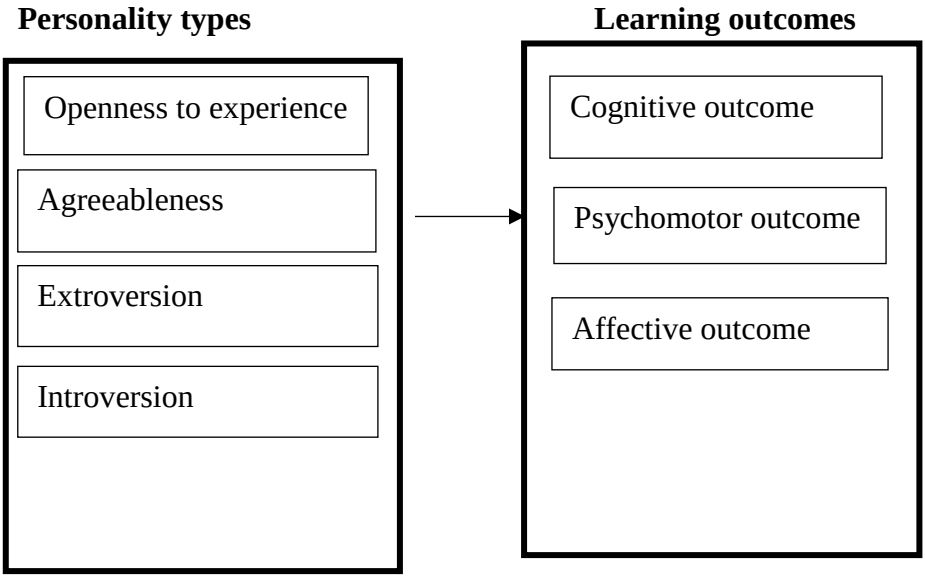
Introversion

Introversion is characterized by a preference to study alone and normally preferring quieter environments while finding group study and social interactions tiring (Cain, 2012). The introverted are more reflective, independent, and self-motivated, hence they prefer to work independently and remain focused on their own thoughts and ideas. While more introverted students are bound to excel at individual assignments and quiet study environments in the academic setting, it is not so easy to do group work and make class presentations.

Introversion, however, fosters creativity, allows one to enhance his or her critical thinking processes, and achieve a deeper understanding of the subject matter at hand.

Research Model

Independent variable: **Dependent variable:**



Source: Researchers' construction (2024)

Theoretical Review

This study relies on the big five theory of personality which was popularized by McCrae and Costa (1987). The theory assumes that personality can be described in terms of five very important dimensions: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism, commonly known to form the acronym OCEAN. The dimensions are relatively stable across time and situations and the basis for individual differences in behaviour, thoughts, and feelings. Such dimensions are hierarchically organized, according to the theory— that is, more specific traits and facets are nested within the general dimensions. Concerning how the Big Five theory can be applied, for example, in a study that reveals the influence of personality type on the learning outcome of a secondary school

student, it has provided aspects of individual differences in the OCEAN dimensions that relate to academic achievement and learning behaviours. For example, the study by Poropat (2014) reveals that Conscientiousness is positively related to academic achievement, whereas Neuroticism stands in a negative relationship. Knowing how personality types, influence learning results can guide an educator in designing the best intervention for his or her learners.

Empirical Review

Yu (2021) examined the ways through which the effectiveness of online instruction could be enhanced in this very special period. From the mixed research design that was adopted, it was revealed that students in post graduate studies in online studies did better than the undergraduate students in the courses offered online. They also scored higher in agreeableness, conscientiousness and openness to experience. Another study by Eliezer and Marantika (2022) established the relationship between gender, learning outcomes, and learning styles. The descriptive research design was used as the approach for conducting the inquiry. The sample, randomly selected during the second semester from thirty German learners, had fifteen male and fifteen female individuals. The overall findings pointed out a relation between learning results, gender, and educational styles. Concluding the study, it can be interpreted that gender and educational style may influence students' results-oriented learning outcome with respect to their language ability.

Also, Atela (2023) examined undergraduates in 100 level in government owned universities in Kenya. The study examined personality types in relation to intelligence level of the students. It was descriptive study. It was found that the male students had more sociable personality than the female students. However, the women dominated in terms of openness to experience. Moreover, Aydemir and Bayram (2022) examined personality typologies and learning methods using path analysis. They found that extroversion and openness impacted surface and in-depth learning. Additionally, it was discovered that a sense of self-worth significantly impacted the superficial and in-depth studying. The findings indicate that personality traits influence learning methodologies in some way. Considering the in-depth learning strategy as the ideal learning approach, the study's result indicates that self-efficacy and personality types have remarkably positive influence on

deep learning. Furthermore, Brandt, et al. (2020) examined whether the relationships between cognitive ability and personality and academic performance varied across ability-grouped school tracks as well as between school subjects. In a sizable representative population of ninth-grade German pupils, SEM models were used. Compared to the other tracks, personality factors accounted for a greater portion of the variance in academic success.

Methodology

Research Design

Descriptive survey method was adopted for the study. The method was particularly used to gather data on the respondents' views and opinion concerning the phenomenon that was studied.

Population

The target population of this study comprised Mathematics and English language teachers as well as students in public secondary schools in Ikopba-Okha LGA of Edo State of Nigeria.

Sampling Technique

Data from Ministry of Education, Edo State reveal that there are 12 public secondary schools in the Ikopba-Okha LGA of Edo State. To avoid bias in the selection of schools, multi-stage sampling technique was used. First, simple random sampling was used in selecting the schools. The schools were numbered in their order of publication number inopendata.edostate.gov.ng. The 3rditem that represented a school was circled. Hence 4 schools were identified for the study. Table 1 presents the selected schools.

The second stage was to randomly select students from the sampled school to serve as respondents. The total number of students for the study was therefore 117

The English and mathematics teachers from the selected secondary schools were also chosen using simple random sampling. That is all teachers who teach English language and Mathematics in the SS arms were itemized, 16 mathematics and English language teachers were selected for the study. Therefore, the grand total of respondents for the study was 133. This is represented in Table 1.

Table 1: Sample Distribution of Respondents

Schools	Mathematics and English Language Teachers	SS 1-3 students
Army Day Sen. Sch	4	25
Oka Secondary School	4	27
Ugiomo Sec. Sch	4	32
Western Boys High School	4	33
Total	**16**	**133**

Source: Fieldwork (2024)

Research Instrument

A structured instrument titled: Effect of Personality Type on Students' Learning Outcomes Questionnaire (EPTSLOQ) was used for the research study. It was structured basically into two sections. Section A contained demographic data while section B contained 32 items structured in Likert scale method of Strongly Agreed (4), Agree (3), Disagree (2), and Strongly Disagree(1) point.

Validity of the Instrument

The content and face validity of the instrument were carried out by giving the draft of the instrument to 2 experts in education research. Their corrections and suggestions were used to develop the final draft of the questionnaire.

Reliability of the Instrument

The questionnaire was further subjected to reliability test. The results are shown in Table 2.

Table 2: Reliability Results

Variables	No. items	Cronbach value
Extraversion	4	0.721
Introversion	4	0.791
Conscientiousness	4	0.733
Openness to experience	4	0.781
Agreeableness	4	0.708
Cognitive outcome	4	0.755
Psychomotor outcome	4	0.778
Affective outcome	4	0.810

The Cronbach alpha values were above 70% (0.7) indicating that the research instrument was reliable for the study.

Method of Data Analysis

The data collected were analysed using inferential statistics such as Pearson correlation through the SPSS version 25.

Results

Relationship between Personality Types and Learning Outcomes

The regression was deployed in testing the different hypothetical statements of this study.

Ho_1: There is no significant relationship between openness to experience and learning outcomes (such as cognitive, psychomotor, and affective).

Table 3: Openness to Experience and Learning Outcome

Variables	Coefficients	Cognitive	Psychomotor	Affective
Openness to experience	Unstandardised coefficient B	.184	-.035	.233
	Standard Error	.054	.062	.058
	T	3.396	-.561	4.022
	Sig.	.001	.575	.000

The results from the regression indicate openness to experience expresses relations with learning outcomes, that is, cognitive, psychomotor, and affective. For cognitive learning outcomes, the B = 0.184, that is a positive relationship statistically significant at $p < 0.05$. Likewise, for affective learning outcome, B = 0.233, indicating a positive relationship, statistically significant at $p < 0.05$. However, for psychomotor learning outcomes, B = -0.035, which indicates a negative relationship, but it is not statistically significant at $p = 0.575 > 0.05$. From the findings on the above, we test the hypothesis. Hence, we reject Ho_1 on cognitive and affective learning outcomes but fail to reject it on psychomotor learning outcome.

Ho_2: There is no significant relationship between conscientiousness and learning outcomes (such as cognitive, psychomotor, and affective).

Table 4: Conscientiousness and Learning Outcome

Variables	Coefficients	Cognitive	Psychomotor	Affective
Conscien-tiousness	Unstandardised coefficient B	-.254	.008	-.065
	Standard Error	.061	.070	.066
	T	-4.142	.108	-.982
	Sig.	.000	.914	.327

The regression results are those which present the relation of conscientiousness with learning outcomes, whether cognitive, affective, and psychomotor. For the cognitive learning outcomes, B = -0.254, indicating a negative relationship, and this is statistically significant at $p < 0.005$. At the same time, for the psychomotor learning outcomes, B = 0.008, indicating a positive relationship, though not statistically significant at p = 0.914. Likewise, with regard to affective learning outcomes, B = -0.065, which indicates a negative relationship but, once more, is not significantly different from zero because p = 0.327. Based on this, we reject Ho_2 for cognitive learning outcomes but fail to reject it for psychomotor and affective learning outcomes.

Ho_3: There is no significant relationship between extraversion and learning outcomes (such as cognitive, psychomotor, and affective).

Table 5: Extraversion and Learning Outcomes

Variables	Coefficients	Cognitive	Psychomotor	Affective
Extraversion	Unstandardised coefficient B	.487	.460	-.171
	Standard Error	.095	.109	.102
	T	5.104	4.229	-1.673
	Sig.	.000	.000	.095

The regression results give a relationship between extraversion and learning outcomes: cognitive, psychomotor, and affective. In the cognitive learning outcome, the B = 0.487, indicating a positive relationship statistically significant at $p < 0.05$. Similarly, in the psychomotor learning outcomes, B = 0.460, also indicating a positive

relationship statistically significant at $p < 0.001$. For affective learning outcomes, –0.171, hence a negative relationship, but not statistically significant at $p = 0.095 > 0.05$. According to these results, we reject Ho_3 for cognitive and psychomotor learning outcomes and fail to reject it for affective learning outcomes.

Ho_4: There is no significant relationship between agreeableness and learning outcomes (such as cognitive, psychomotor, and affective).

Table 6: Agreeableness and Learning Outcomes

Variables	**Coefficients**	**Cognitive**	**Psychomotor**	**Affective**
Agreeableness	Unstandardised coefficient B	-.169	.118	-.171
	Standard Error	.059	.067	.102
	T	-2.870	1.762	-1.673
	Sig.	.004	.079	.095

The regression results show Agreeableness with Learning Outcomes: Cognitive, Psychomotor, and Affective. Regarding the cognitive learning outcomes, the unstandardized coefficient is B = -0.169, indicating a negative relationship that is statistically significant at $p = 0.004$. For psychomotor learning outcomes, B = 0.118, indicating a positive relationship, though not statistically significant at $p = 0.079$. Similarly, for affective learning outcomes, B = –0.171, indicating a negative relationship, but it is also not statistically significant at $p = 0.095$. Therefore, we reject Ho_4 for cognitive learning outcomes, but we cannot for psychomotor and affective learning outcomes.

Ho_5: There is no significant relationship between introversion and learning outcomes (such as cognitive, psychomotor, and affective).

Table 7: Introversion and Learning Outcomes

Variables	Coefficients	Cognitive	Psychomotor	Affective
Introversion	Unstandardised coefficient B	.119	-.104	.682
	Standard Error	.053	.061	.057
	T	2.237	-1.718	11.975
	Sig.	.026	.087	.000

The results of the regression showed introversion had some relationship with cognitive, psychomotor, and affective learning outcomes. In the case of cognitive learning outcomes, the B = 0.119, indicating a positive relationship, statistically significant at $p = 0.026 < 0.05$. At the same time, for psychomotor learning outcomes, B = -0.104, indicating a negative relationship, not statistically significant at $p = 0.087 > 0.05$. For affective learning outcomes, B = 0.682, pointing to a positive relationship, statistically significant at $p < 0.05$. These results enable us to test the hypothesis Ho_5. Hence, we reject Ho_5 for cognitive and affective learning outcomes but fail to reject for psychomotor learning outcomes.

Discussion

The study explored how personality types are related to the learning outcomes of secondary school students in Edo State. The findings showed that openness to experience was positively correlated with cognitive and affective learning outcomes but not with psychomotor learning outcomes. This agrees with previous studies, Komarraju, Karau, and Schmeck (2009); Poropat (2014); Yu (2021), where openness to experience was found to be an efficient forecaster of academic achievement.

On the other hand, conscientiousness showed a negative significant relationship with cognitive learning outcomes but no significant relationship with psychomotor and affective learning outcomes. Although that is contrary to a number of studies that have reported a positive relationship of conscientiousness with academic achievement, such as Atela (2023); Richardson Abraham, and Bond

(2012). Nevertheless, it has to be noted that the population of the current research was secondary school students, while in the previous ones, university students had been targeted.

There is found to be a positive relationship between Extraversion with cognitive and psychomotor learning outcome variables but not with the affective learning outcome variable. This result agrees with several previous studies, for example, Aydemir and Bayram (2022). Laidra, Pullmann, and Allik (2017) all found extraversion relating to academic achievement, with special attention paid to social learning environments.

The results indicated an inverse significant relationship between Agreeableness and Cognitive Learning Outcomes but no significant relationship with Psychomotor and Affective Learning Outcomes. This agrees with Eliezer and Marantika (2022) that agreeableness inversely related to academic achievement, especially in competitive learning environments.

Finally, introversion strong positive relationship existed with cognitive and affective learning outcomes but not with psychomotor learning outcomes. This agrees with past findings that introversion is related to academic achievement, especially in independent learning environments. In sum, the research points to the necessity of considering personality types in understanding learning outcomes amongst Form Four students.

Implications for Theory and Practice

The findings have bearings on the big five personality model to be applied in understanding individual differences in learning outcomes. On the basis of these findings, this study does affirm that traits in personality, such as openness to experience, conscientiousness, extra-version, agreeableness, and introversion, do play a very huge role in shaping learning outcomes. This thereby supports the theoretical framework put forth by the Big Five personality model that individual differences in personality can diffuse into all kinds of behaviours, including learning. These findings add to the literature accumulated on the Big Five personality model, contributing further proof toward the validity and applicability of this model within an educational context.

The practical implications of the present study on secondary schools confirm that individual differences in personality remain a major consideration in learning experiences. Teachers and other

educators could utilize the Big Five personality model when structuring their teaching techniques by recognizing the strengths and weaknesses of students. For example, the learning activities of students high in openness to experience might include more creative and exploratory activities, while students high in conscientiousness might benefit from more structured and organized learning environments. When educators acknowledge and accommodate such differences in personality, they make the learning environment more inclusive and effective for a wide array of diverse students' needs.

The findings also insinuate that personality-based interventions and programs can be adapted at the level of secondary schools with the view of enhancing positive learning outcomes. For example, some intervention programs can be designed to enhance openness to experience, for instance, creative writing classes or art-related activities. Other intervention programs may focus on enhancing conscientiousness, such as remedial skills or time management workshops. This will help secondary schools to bring about a more holistic approach toward teaching by recognizing the role of personality in learning, which will meet the diversified needs and abilities of students. Eventually, this leads to improved academic achievement, enhanced student engagement, and promotes well-being.

Conclusion

This study examined the effect of personality types on the students' learning outcomes in senior secondary schools in Edo State, Nigeria. This research was harnessed on the big five personality model that incorporates openness to experience, conscientiousness, extraversion, agreeableness, and introversion. The results of this study has established that personality traits have a significant effect on learning outcomes. More specifically, openness to experience and introversion emerged as positive correlates of affective learning outcomes, while extraversion was a positive correlate of both cognitive and psychomotor learning outcomes.

These results have implications for theory, for practice, and for the overall significance of accounting for individual differences in personality when engineering learning experiences. The results support the validity and applicability of the Big Five personality model in educational settings. This outcome also points to the fact that educators and policymakers need to think about incorporating interventions and

programs based on personality with positive learning outcomes. The recognition of the role played by personality in learning can establish a more inclusive and effective learning environment that meets the diverse needs of students. It contributes to the enhancement of understanding of the relationship between personality and learning outcomes and this also points at the necessity of putting individual differences regarding personality into consideration in designing learning experiences**.**

Recommendations

On the basis of the findings, the following are suggested:

1. Learning interventions that depend on personality: It is important for interventions and programmes to consider personality when embarking on what would go a long way in encouraging positive learning, for both teachers and policymakers. Such interventions include those that will encourage openness to experiences, such as creative writing or art classes, or those that encourage conscientiousness, including study skills or time management workshops.
2. Teaching method tailoring: An educator needs to tailor teaching methods to individual personality differences. For example, students high in openness to experience would enjoy more creative and imaginative learning activities than students high in conscientiousness, who might better benefit from a more structured and organized learning environment.
3. Personality assessment: Schools should consider incorporating personality assessments in their admission or placement procedures. This would help teachers understand areas in which the students are weak and strong, hence providing the necessary support that would enable them to achieve the best results.
4. Training teachers: Training must be imparted to teachers on the Big Five model of personality and its implications for learning. This will help teachers to fully understand individual differences in personality and give them strategies on how to accommodate the differences into their teaching practices.
5. Learning environments: An inclusive learning environment that provides day-to-day opportunities for students with diverse needs can involve extracurricular participation, developing a sense of humour, and fun through socialization and teamwork.

6. The Ministry of Education in Edo State, should ensure that their agencies, State Universal Basic Education Board (SUBEB) and Post Primary Education Board go round schools to ensure that these recommendations are enforced.

References

Andreev, I. (2024). Learning outcomes. https://www.valamis.com/hub/learning-outcomes#:~:text=Learning%20outcomes%20verbs-,What%20are%20learning%20outcomes%3F,of%20training%20programs%20in%20organizations.

Atela, J. (2023). *Types of intelligence, personality types and their relationship with gender and career choice among first year undergraduate students in a selected public University*, Kenya [Unpublished doctoral dissertation], Maseno University.

Aydemir, M., & Bayram A. N. (2022). A path analysis of learning approaches, personality types and self-efficacy. In *advances in econometrics, operational research, data science and actuarial studies: Techniques and theories*, 285-298. Springer International Publishing.

Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university*. McGraw-Hill Education.

Bloom, B. S. (Ed.). (1956). *Taxonomy of educational objectives: Cognitive domain.* Longmans, Green.

Brandt, N. D., Lechner, C. M., Tetzner, J., & Rammstedt, B. (2020). Personality, cognitive ability, and academic performance: Differential associations across school subjects and school tracks. *Journal of personality, 88*(2), 249-265.

Cain, S. (2012). *Quiet: The power of introverts in a world that can't stop talking.* Crown Publishers.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO personality inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual.* Psychological Assessment Resources.

Denise, C., & Jane, C. (2016). *Instructional resources*. https://blog.citl.mun.ca/instructionalresources/learning-outcomes/#:~:text=on%20those%20topics.-,Definitions,students%20to%20do%20or%20know..

Eliezer, J., & Marantika, E.R. (2022). *The relationship between learning styles, gender and learning outcomes.*KıbrıslıEğitimBilimleriDergisi.

Feist, G. J. (2013). *The psychology of science and the origins of the scientific mind.* Yale University Press.

Goldberg, L. R. (1990). An alternative description of personality: The big-five factor structure. *Journal of Personality and Social Psychology, 59*(6), 1216-1229.

Graziano, W. G., & Tobin, R. M. (2017). *The Oxford handbook of personality and social psychology.* Oxford University Press.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin& O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102-138). Guilford Press.

Jung, C. G. (1921). *Psychological types.* Routledge.

Kashdan, T. B., & Ciarrochi, J. (2013). *Mindfulness, acceptance, and positive psychology: The seven foundations of well-being.* New Harbinger Publications.

Komarraju, M., Karau, S. J., &Schmeck, R. R. (2009). Role of the Big Five personality traits in predicting academic motivation and achievement. *Journal of Educational Psychology, 103*(2), 392-404.

Kotov, R., Gamez, W., Schmidt, F. L., & Watson, D. (2017). Linking big personality traits to anxiety, depressive, and substance use disorders: A meta-analysis. *Psychological Bulletin, 143*(6), 673-712.

Lahey, J. N. (2017). Neuroticism and mental health: A review of the evidence. *Personality and Individual Differences, 104,* 101-113.

Laidra, K., Pullmann, H., & Allik, J. (2017). Personality and academic achievement: A systematic review. *Learning and Individual Differences, 56,* 133-144.

Larsen, R. J., & Buss, D. M. (2017). *Personality psychology: Domains of knowledge about human nature.* McGraw-Hill Education.

McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*(1), 81-90.

Poropat, A. E. (2014). The relationship between conscientiousness and academic performance: A meta-analytic review. *Learning and Individual Differences, 34*, 20-28.

Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin, 13*8(2), 353-387.

Roberts, B. W. (2017). *Personality development across the life span.* In T. A. Widiger (Ed.), The Oxford

Siegel, D. J. (2017). *Mind: A journey to the heart of being human.* W.W. Norton & Company.

South Caroline University. (2024). *Learning outcomes*. https://sc.edu/about/offices_and_divisions/cte/teaching_resources/course_design_development_delivery/learning_outcomes/index.php#:~:text=Learning%20outcomes%20describe%20the%20measurable,result%20of%20a%20completing%20a.

Steel, P., & Konig, C. J. (2018). Personality and academic achievement: A meta-analytic review. *Journal of Educational Psychology, 110*(3), 291-305.

Tackett, J. L., Lahey, J. N., & Waldman, I. D. (2017). The development of conscientiousness in childhood and adolescence. *Journal of Personality and Social Psychology, 113*(4), 631-648.

Yu, Z. (2021). The effects of gender, educational level, and personality on online learning outcomes during the COVID-19 pandemic. *International Journal of Educational Technology in Higher Education, 18*(1), 14.

Ghana Journal of Education: Issues and Practices (GJE)
Vol. 10, December 2024, pp. 117-147, https://doi.org/10.47963/gje101867

Corporate Governance as a Tool for Effective School Management in Senior High Schools in Ghana

Justice Ray Achoanya Ayam

Catholic University College of Ghana, Fiapre, Bono Region

*Corresponding authors's email address: ajrayam@yahoo.com

Abstract

This study examined the state of corporate governance (CG) in senior high schools (SHSs). A qualitative research design was adopted to review policy documents, academic literature, and semi-structured interviews with stakeholders from four senior SHSs across the Greater Accra, Ashanti, and Northern Regions. Participants included headmasters, assistant headmasters, officials from the Ghana Education Service, and the Public Services Commission. Purposeful sampling guided case selection. The findings revealed significant deficiencies such as outdated CG regulations, ambiguous board oversight roles, weak disclosure practices, and limited stakeholder engagement. Recommended interventions included strengthening regulatory frameworks, promoting participatory governance, and implementing capacity-building initiatives. These measures are aimed at enhancing governance efficiency, financial transparency, and institutional accountability, contribute to the broader conversation on governance reform in Ghana's education sector, and underscore the importance of sound governance in achieving sustainable school management and institutional excellence.

***Keywords**:* Corporate governance practice; senior high/technical schools; board of governors; school management; senior high schools; Ghana

Introduction

Corporate governance (CG) is a fundamental framework comprising rules, practices, and processes that guide accountability, transparency, and ethical conduct within organizations, including educational institutions (Mrabure & Abhulimhen-Iyoha, 2020; Areneke, Khlif, Kimani & Soobaroyen, 2022). In the context of Ghanaian Senior High Schools (SHSs), effective CG is essential for

achieving educational objectives, ensuring accountability, and promoting transparency among administrators, teachers, students, and other stakeholders (Amadi, Abali & Igoni, 2022; Ramírez & Tejada, 2018). Despite its recognized importance, governance structures in SHSs continue to face significant challenges, particularly in financial oversight, board capacity, and stakeholder engagement.

A notable issue is inadequate financial oversight. Many SHSs lack comprehensive financial auditing procedures, leading to inefficiencies and misallocation of resources. This gap in financial governance contributes to resource mismanagement, often due to weak oversight mechanisms and insufficient internal controls. Such financial governance deficits have been repeatedly highlighted, emphasizing the need for more transparent and accountable financial practices to ensure the effective utilization of funds (Auditor General's Report, 2021).

Another significant challenge lies in the limited training of board members on CG principles. Board members in many SHSs are often not adequately equipped with the necessary knowledge regarding financial transparency and accountability, which hinders their capacity to provide effective oversight. This governance shortfall creates dissatisfaction and mistrust among stakeholders, including parents, teachers, and the wider community. The lack of professional development programmes aimed at building the capacity of board members further exacerbates this issue, underlining the need for targeted interventions to improve governance competence (Shibuya, 2022).

Additionally, ambiguities in board roles and ethical governance remain prevalent. In many SHSs, governance frameworks have not kept pace with evolving educational needs and regulatory changes, leading to confusion about board members' responsibilities. This has resulted in conflicts of interest, ethical lapses, and the persistence of favour-based practices within decision-making processes. The out-dated governance structures in some institutions impede the adoption of modern ethical governance practices, further emphasizing the necessity for reform to provide clear guidelines on board roles and ethical responsibilities (Sambu, Minja & Chiroma, 2021).

Despite the growing acknowledgment of the significance of CG in educational institutions, there is limited empirical research specifically focused on its application in SHSs in Ghana. Most studies centre on corporate sectors, leaving a gap in understanding the unique

challenges and opportunities CG presents within the educational sector. This study aims to address this gap by examining how CG principles can be applied to strengthen governance structures in SHSs, ultimately enhancing school performance and building stakeholder trust.

The broader objective of this study is to assess the effectiveness of CG in promoting effective school management in SHSs in Ghana. To this end, the study will address the following key research questions: What are the current CG practices in Ghanaian SHSs, and how do they compare with global best practices? What structural and operational challenges impede effective CG in SHSs? How can stakeholder participation and human resource development contribute to improved governance in SHSs? What impact do core CG principles such as transparency and accountability have on SHS management and performance?

This article is structured to follow a logical progression. After establishing the research context and objectives, the literature review explores SHSs' governance frameworks, legal regimes, challenges, and opportunities. The methodology section outlines a mixed-method approach, incorporating interviews and financial report analysis. The findings provide empirical insights into CG as a tool for effective school management, concluding with recommendations for policymakers and education leaders on enhancing governance systems in SHSs.

Objectives of the Study

The primary objective of this study is to provide policy recommendations for improving school management and CG practices in Ghanaian SHSs. The specific objectives are to:

1. Assess existing CG practices in Ghanaian SHSs and suggest strategies for alignment with global best practices.
2. Identify key structural and operational challenges that impede effective CG implementation in SHSs.
3. Explore the role of stakeholder engagement and human resource development in strengthening governance and enhancing educational outcomes, focusing on inclusivity and capacity building.
4. Evaluate the impact of CG principles, including transparency, accountability, and ethical conduct, on overall school management and performance.

The Purpose of the Study

The primary purpose of this study is to emphasize the importance of effective school management and CG practices within Ghanaian educational institutions, aimed at improving educational quality and promoting sustainable development. The findings of this study will provide actionable insights for policymakers and school administrators by identifying governance strategies that enhance accountability, transparency, and ethical conduct within educational institutions. These strategies can guide the formulation of policies aimed at improving school management, financial oversight, and stakeholder engagement. The study's emphasis on risk management and efficient resource utilization will enable administrators to optimize operations, attract qualified teachers, and foster stronger community ties. Additionally, the findings offer replicable governance models that can be adapted across other African educational systems, fostering sustainable development in similar contexts.

Significance of the Study

This study highlights the critical role of strong CG in enhancing school management and educational outcomes in Ghanaian SHSs. Evidence from the Ghana Ministry of Education and Organisation for Economic Co-operation and Development (OECD) supports the link between governance reforms and improved academic performance, efficient resource allocation, and accountability systems. Strong governance fosters long-term benefits, such as better financial oversight, transparency, and ethical leadership, which are fundamental to attracting skilled teachers and enhancing student performance. The findings offer practical strategies for policymakers and administrators, with the potential to drive sustainable improvements in SHS management and educational development across Ghana.

Literature Review

Key Concepts and Principles of Corporate Governance

In the context of Senior High School (SHS) management, corporate governance (CG) is crucial for fostering accountability, transparency, and ethical practices among stakeholders. As Addink (2019) highlights, accountability involves the obligation of school administrators to key stakeholders, such as students, parents, teachers, and the broader community (Brown et al., 2020). In Ghana, Manu,

Zhang, Oduro, Krampah-Nkoom, Mensah, Anaba and Isaac (2020) and Addo (2019) have also underscored the importance of accountability in school leadership, noting its role in enhancing trust and legitimacy in SHS governance. Transparent decision-making processes and effective resource management are essential for safeguarding stakeholder interests (FoEh et al., 2022). As Acquah (2017) argues, transparency in financial management enhances stakeholders' ability to assess school performance and fosters institutional trust.

Ethical accountability further strengthens governance by aligning decisions with integrity and fairness, ensuring that SHS management acts in the best interests of stakeholders (Liu & Yin, 2023; Grigoropoulos, 2019). Fairness and responsibility, as emphasized by Tang and Higgins (2022), guarantee equitable treatment of stakeholders, leading to more effective and sustainable school outcomes.

Theoretical Framework

Theoretical frameworks of CG offer crucial insights for improving SHS governance outcomes, such as accountability and educational performance. Agency theory emphasizes the need for effective oversight to ensure school administrators act in the institution's best interests (Boon, 2018). Stewardship theory underscores the commitment of school leaders to advancing educational goals in Ghana, as demonstrated in Kwaah and Nishimuko (2023). Stakeholder theory promotes inclusive decision-making, ensuring that all stakeholders' concerns are addressed (Blackmore et al., 2022), while institutional theory advocates for the integration of societal norms and innovative practices (Harun, 2021). Finally, contingency theory suggests that governance strategies should be context-specific, adapting to the unique needs of each SHS (Mulandi, 2022).

Governance Framework for SHSs and Basic Schools

The governance framework for SHSs and Basic Schools in Ghana, as outlined in Figure 1, highlights the hierarchical and interconnected roles of key bodies such as the Ghana Education Service (GES) Council, SHS Governing Boards, SHS and Basic Schools Management, and Metropolitan, Municipal, and District Assemblies (MMDAs) Education Oversight Committees. Each entity ensures compliance with legal standards while promoting educational

excellence. However, ambiguities in governance roles, particularly between SHS Governing Boards and SHS Management, often lead to inefficiencies (Quist, 1999). For instance, while the boards provide strategic oversight, the execution of these strategies is often hindered by unclear responsibilities. As emphasised in the *Corporate Governance Manual* (Public Services Commission, 2023) and the *Constitution of the Board of Governors for Senior Secondary Schools* (Ministry of Education, 1998), institutional clarity is vital for coherent governance. Yet, the 1998 Constitution reveals critical weaknesses: it lacks explicit provisions on role delineation, conflict resolution, and performance expectations. It also fails to address the evolving governance needs of decentralised educational systems and does not stipulate competency requirements for board members, resulting in uneven institutional capacity. Practical solutions for resolving these ambiguities include implementing governance charters that clearly delineate the roles and expectations of each body, ensuring a seamless transition from strategy to execution (Salifu, 2022). Furthermore, establishing regular training programmes for board members and management would foster better understanding and cooperation, enhancing accountability (Amakyi, 2022). Localized support from the MMDAs, as intermediaries, could also ensure that strategic directives align with local needs, thereby reducing governance conflicts (Yamoah, 2023).

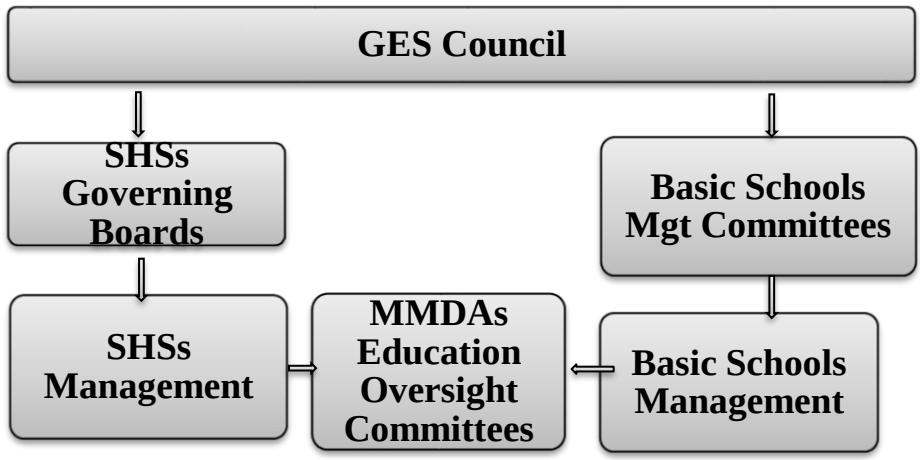


Figure 1: Schools Governance Conceptual Structure
Source: Author's Analysis

The Legal Regime of Education in Ghana

The legal regime governing education in Ghana is framed by key statutes such as the Education Act of 1961 (Act 87), which establishes the GES under the Ministry of Education. This framework ensures oversight of public and private educational institutions (Yamoah, 2023). The GES, guided by the GES Amendment Act of 2008 (Act 788), plays a central role in overseeing governance structures in SHSs and Basic Schools. School Governing Boards are mandated to collaborate with management teams to enforce education policies (Ayeni & Bamire, 2022), while MMDAs enhance local governance through Education Oversight Committees (Ampofo, Opoku, & Opoku-Manu, 2022). Despite these provisions, the Pre-Tertiary Education Act of 2020 (Act 1049) and the GES Amendment Act reveal overlapping roles, particularly between Schools Governing Boards (SGBs) and regional and district directorates (Solomon, 2020). This overlap creates ambiguities in mandates, reducing the effectiveness of governance practices. To address this, clearer delineation of responsibilities is needed between the GES, SGBs, and MMDAs. Strengthening the legal framework by incorporating explicit guidelines on role distribution and enforcement can enhance accountability and improve governance outcomes in Ghana's educational sector.

The State of Senior High/Technical Education in Ghana

The landscape of senior high and technical education in Ghana has undergone substantial transformation, driven by policies aimed at expanding access and institutional accountability. Following the implementation of the Free Senior High School (FSHS) policy in 2017, enrolment surged, with public Senior High Schools (SHSs) accounting for the majority of enrolments, rising from 1.25 million in 2017 to over 1.52 million in 2021 (Takyi, Azerigyik & Amponsah, 2019). Public Senior High Technical Schools (SHTSs), which blend general academic and applied technical training, also recorded steady growth, yet remain underrepresented in resource allocation frameworks. Technical and Vocational Education and Training (TVET) institutions continue to reflect limited enrolment, growing modestly from approximately 106,000 in 2017 to 131,000 in 2021. This segment—constituting just 6% of total secondary enrolment, suffers from persistent public perception challenges and systemic underinvestment (Chea, 2021). Private SHSs and SHTSs, while contributing to enrolment expansion, remain modest in scale and face governance gaps

in oversight and quality control. These enrolment trends illuminate the urgent need for a differentiated and responsive corporate governance (CG) framework. Such a model must prioritise equitable resource distribution, enhanced stakeholder engagement, and robust performance monitoring to ensure that both academic and technical education sectors advance national goals of inclusive, skills-driven development (Ampofo, Amoah & Peprah, 2020; Mwinkaar & Ako, 2020).

Table 1 gives the enrolment trends from 2017 to 2021.

Table 1: SHS, SHTS, TVET Enrolment

Category	2017	2018	2019	2020	2021	Total
Public Senior High Schools	1,254,583	1,321,439	1,387,452	1,457,891	1,521,210	**6,942,575**
Senior High Technical Schools	231,905	244,671	258,304	273,189	287,848	**1,295,917**
Technical and Vocational Services Schools	105,842	112,014	118,401	125,109	131,160	**592,526**
Private Senior High Schools	72,367	78,874	85,647	92,703	99,982	**429,573**
Private Senior High Technical Schools	9,845	10,712	11,672	12,751	13,951	**58,931**
Total	**1,676,559**	**1,769,728**	**1,863,495**	**1,963,663**	**2,056,172**	**9,329,617**

Source: Author's own analysis with data from the GMoE. (2017 to 2021).

Challenges and Opportunities of CG in SHSs in Ghana

The governance challenges facing SHSs in Ghana can be addressed through a structured application of CG principles. First,

enhancing stakeholder understanding of CG principles through targeted training programmes for school leaders and board members is essential (Thompson, Alleyne & Charles-Soverall, 2019). Second, improving resource allocation and providing opportunities for professional development will equip leaders with the skills needed for effective governance (García & Weiss, 2019). Third, fostering inclusive stakeholder engagement—by involving students, parents, and communities, will promote transparency and accountability in decision-making (Akrong, 2022). Fourth, establishing robust financial controls and strengthening funding mechanisms can address financial mismanagement and ensure accountability (Kultsum & Wang, 2021; Dwangu & Mahlangu 2021). Lastly, promoting gender equality and diversity in leadership roles will create a more inclusive governance environment, enhancing overall governance performance (Bayer & Wilcox, 2019).

Synthesis and Gaps in the Literature Review

While existing empirical research on CG in Ghanaian SHSs provides valuable insights (Appiah, 2020; Aryeh-Adjei, 2021; Chen & Smith, 2019), there is a notable deficiency in studies that explicitly link CG practices to educational outcomes. Leadership's role in enhancing transparency and stakeholder participation has been discussed (Sari et al., 2018; Dampson & Afful-Broni, 2018), yet the literature often neglects to connect these governance aspects directly to improvements in academic performance and resource efficiency. Community engagement is similarly acknowledged as vital for effective governance (Agbeme & Baiden, 2021; Boadu, 2022), but its impact on student success remains underexplored. Moreover, while financial management practices such as budgeting and auditing are recognized for strengthening accountability (Tetteh et al., 2021; Ngigi & Tanui, 2019), critical inefficiencies persist in procurement and resource allocation, which require more detailed examination.

Case studies from countries with similar educational contexts, such as Kenya and Nigeria, show that effective CG, particularly in financial oversight and stakeholder engagement, directly influences school performance and resource utilization (Aboagye & Ahmed, 2019; Manu et al., 2020). These findings underscore the imperative for comparative studies that critically examine how CG practices influence the effectiveness of school management within Ghanaian Senior High

Schools. Such inquiry would directly advance the study's broader objective of assessing the extent to which CG mechanisms promote accountable, inclusive, and performance-driven management systems across SHSs in Ghana

Methodology

Research Design

This study adopts a qualitative multimethod research design incorporating systematic literature review, document analysis, and semi structured interviews. Four public SHSs were purposively sampled across three regions: Greater Accra, Ashanti, and Northern, to reflect geographic, administrative, and socio-economic diversity. The literature review identified prevailing CG themes, while official policy documents contextualized governance frameworks. Empirical data were gathered from school heads, board members, and education officers through interviews, ensuring triangulation and credibility. This design allows for an in-depth exploration of governance practices, challenges, and strategies, offering transferable insights into school management across varied Ghanaian SHS contexts.

Sampling and Selecting Interview Respondents

Four public SHSs were purposively selected from three administrative regions: Greater Accra, Ashanti, and Northern. Selection was informed by documented variation in CG performance. Schools were classified as exhibiting strong, evolving, or weak governance frameworks based on triangulated indicators, including audit evaluations, compliance with GES directives, and stakeholder performance appraisals. This stratified sampling enabled a comparative analysis of governance efficacy across distinct institutional and socio-political environments. Strict anonymization protocols were employed to preserve institutional and respondent confidentiality.

Key Respondents: Seven governance practitioners were interviewed in September 2024. The sample comprised four school heads and assistant heads involved in governance execution and administrative compliance, two schedule officers serving as institutional oversight agents, and one governing board chair responsible for strategic leadership and stakeholder engagement. Participants were selected for their central roles in school governance. Each interview lasted 45 to 60 minutes, was audio recorded with consent, and transcribed verbatim. NVivo 11 facilitated systematic coding and thematic analysis using Braun and Clarke's (2022) six-phase framework, ensuring analytic rigour and enhancing the credibility of cross-case insights into governance practices in Ghanaian SHSs.

Data Collection

Document Reviews: A thorough document review was conducted, analysing key governance-related documents such as policies, meeting minutes, financial reports, and audit findings. The review provided valuable context and served as a means of cross-validating data obtained through interviews. The literature review incorporated systematic searches of academic databases including JSTOR, ProQuest, Google Scholar, and relevant Ghanaian educational websites. The review process followed a strict protocol, applying specific keywords and selection criteria to identify high-quality, relevant, and recent sources. The following documents were reviewed:

Table 2: Key Desk Review Documents

Document Title	Source of Data	Nature of Data	Link/Access Information
Senior High School Annual Reports 2022	Ghana Ministry of Education (GMoE)	Official school reports	Available through GMoE publications
Ghana SHS Annual Digests 2020	Ghana Ministry of Education (GMoE)	Annual digest reports	Available through GMoE publications
Ghana Education Sector Report 2022	Ghana Ministry of Education (GMoE)	Sector-wide report	Available through GMoE publications
Educational Policies and Frameworks for SHSs	Government and educational policy documents	Policy and regulatory frameworks	Access through government and educational policy archives
Reports from World Bank	World Bank	Governance and educational reports	Available on the World Bank website

Reports from UNESCO Institute for Statistics	UNESCO Institute for Statistics	Statistical reports and data	Available on the UNESCO website
Articles and Papers on CG Practices in SHSs	Google Scholar, Scopus, ScienceDirect, SAGE, Springer, JSTOR	Scholarly articles and papers	Access through respective academic databases
Governance Policies and Meeting Minutes	Case study schools' internal documents	Internal governance documents	Available from each case study school
Financial Reports and Audit Findings	Case study schools' internal documents	Financial documents and audit findings	Available from each case study school
Observational Data from School Meetings	Observational data	Field notes and observations	Not applicable (field observations)

Source: Author's Analysis

Semi-Structured Interviews: The research utilized semi-structured interviews with key respondents to gather qualitative data on their experiences and perspectives regarding CG practices in SHSs. The interviews addressed various aspects of governance, including:

- Application of CG principles,
- Impact on decision-making,
- Challenges encountered, and
- Recommended strategies for improvement.

The semi-structured format allowed for flexibility, enabling respondents to elaborate on their experiences while ensuring that core themes were consistently addressed across interviews.

Thematic Analysis

This study employed Braun and Clarke's (2022) six-phase thematic analysis to examine governance practices in Ghanaian SHSs, focusing on structural gaps and improvement strategies. Expert interviews and document reviews were analysed using NVivo 11, enabling systematic coding and theme identification. The analysis uncovered consistent patterns in governance structures, stakeholder engagement, and accountability, offering critical insights into the strengths and limitations of current school governance frameworks.

Validity and Reliability

Ensuring the validity and reliability of research findings was a central concern throughout the study. The study employed the following strategies to enhance the credibility of the research:

Triangulation: Multiple data sources, including interviews, document reviews, and observational data, were cross-referenced to validate findings. This triangulation process ensured that the research captured a holistic view of governance practices and mitigated the limitations associated with any single data source.

Data Consistency: Cross-validation of information from diverse respondents and data types helped ensure the consistency and reliability of the findings, thereby strengthening the overall trustworthiness of the research.

Ethical Considerations

The study follows stringent ethical protocols to safeguard the confidentiality and anonymity of all participants. Informed consent is obtained from each respondent before data collection, ensuring they are fully informed about the study's objectives and their rights throughout the process. Institutional consent is also secured from the participating SHSs to ensure full adherence to ethical standards. Sensitive data, including financial and operational information, is anonymized to protect the identities of the participating institutions. All data is securely stored, with access restricted to authorized personnel, thereby preventing any unauthorized disclosure.

Results and Discussion

Results

Semi-structured Interview Results

Respondents Demographics

The respondents' diverse educational backgrounds, professional experiences, and governance roles provide a rich perspective on CG in Ghana's SHSs. Their expertise, ranging from education to business administration, shapes their views on governance challenges and opportunities. This diversity enhances the study, offering insights into decision-making, policy enforcement, and strategic planning. By capturing both practical and strategic dimensions, the participants' collective experience contributes to a comprehensive understanding of

governance dynamics in SHSs, particularly regarding transparency, accountability, and ethical leadership.

Table 3: Demographic Profile and Professional Background of Interview Participants

Participant Code	Position	School/Institution	Gender	Years of Work Experience	Years in Current Role	Educational Qualification
P1	Headmaster	SHS A	Male	25 years	5 years	Master's in Education
P2	Assistant Headmaster	SHS A	Female	18 years	3 years	Bachelor's in Education
P3	Headmaster	SHS B	Male	30 years	7 years	Master's in Educational Leadership
P4	Assistant Headmaster	SHS B	Female	15 years	4 years	Bachelor's in Education
P5	Governing Council Chair	SHS A	Male	28 years	8 years	Doctorate in Business Administration
P6	Schedule Officer	Ghana Education Service	Male	20 years	10 years	Master's in Public Administration
P7	Schedule Officer	Public Services Commission	Female	22 years	6 years	Master's in Human Resource Management

Source: Author's own analysis.

Interview Results Thematic Analysis

Theme 1: SHSs CG Practices in Ghana

Corporate governance practices are deeply embedded in the management of Ghanaian SHSs, centring on transparency, accountability, and inclusive stakeholder engagement. At *Institution A*, CG policies are operationalized through open communication channels, frequent financial reporting, and inclusive decision-making processes. These efforts are complemented by clearly outlined procurement standards, ensuring transparency in resource allocation. *Institution B* emphasizes transparent decision-making through regular staff meetings and stakeholder forums, coupled with a structured system to monitor policy effectiveness and drive continuous improvement. At *Institution C*, leadership focuses on enforcing robust governance practices, featuring stringent oversight of financial policies, routine audits, and a

culture rooted in accountability. The Ministry of Education's CG policy mandates the formation of School Management Committees and Boards of Governors, detailing procurement standards, financial controls, and human resource management protocols. Furthermore, the Public Services Commission conducts periodic audits and reviews to ensure compliance. *Institution D* highlights strong leadership through its Governing Council Chair, who enforces transparency and accountability via frequent council meetings and rigorous governance policy enforcement at all levels.

Theme 2: Challenges in SHS CG Practices in Ghana

Resistance to change is a significant barrier to effective CG in Ghanaian SHSs. This resistance often stems from entrenched traditional management systems and a reluctance to adopt new governance frameworks. At *Institution A*, staffs are hesitant to fully embrace CG principles, largely due to inadequate training and limited familiarity with modern governance practices. This reluctance slows decision-making processes and diminishes overall efficiency. *Institution B* faces similar resistance, as staff struggle with adapting to new transparency and accountability measures, fearing that increased scrutiny could expose vulnerabilities. Moreover, balancing confidentiality with transparency in sensitive matters further complicates governance efforts. At *Institution C*, the resistance is compounded by conflicts between traditional hierarchies and modern governance standards, resulting in bureaucratic slowdowns. The Ministry and Public Services Commission both note that varying levels of resource availability and uneven capacity across schools exacerbate these challenges, making governance reforms difficult to implement consistently.

Theme 3: Stakeholder Engagement and Capacity Building in SHS Governance

Corporate governance practices have markedly improved decision-making in SHSs through active stakeholder engagement. For instance, at Institution A, structured consultations with the SMC accounted for the improved student performance of 11% due to more inclusive and data-driven decisions. Similarly, Institution B's collaborative approach to stakeholder input has led to decisions that better align with the school's strategic goals, fostering balanced governance. Institution C has implemented a consultative leadership model, ensuring

participatory decision-making consistent with CG policies. The Public Services Commission's CG guidelines sought to strengthen the decision-making structures in SHSs, promoting transparency and accountability through the active involvement of SMCs and Boards of Governors. At Institution D, the Governing Council Chair confirms that CG principles have led to more transparent, ethically sound decisions, especially in resource allocation and staffing.

Theme 4: Strategies for Effective School Management and Potential Outcome

At Institution A, staffs undergo continuous professional development, while digital tools are integrated into management processes, securing resources and fostering a culture of transparency and improvement. Institution B has implemented regular governance training programmes and adopted digital solutions to enhance decision-making, while encouraging open dialogue to mitigate resistance to change. Institution C prioritizes governance enhancements through professional development and uses digital tools to support inclusive discussions among staff. The Ministry of Education aims to expand these strategies by improving monitoring systems, allocating more resources to underfunded schools, and cultivating governance advancements. The Public Services Commission advocates for standardized governance practices and digital reporting, while Institution D's Governing Council Chair emphasizes leadership capacity-building and consistent reviews of governance practices. These strategies collectively underscore the need for continuous improvement in governance, technology adoption, and leadership to address management challenges in Ghana's SHSs effectively.

Interview Analysis of Corporate Governance Practices in SHSs

Table 4 offers a concise comparative analysis of corporate governance practices across four Ghanaian Senior High Schools (SHSs), highlighting institutional diversity in implementation and maturity. Institution A exhibits proactive governance through transparency and digital oversight. Institution B focuses on structured monitoring but struggles with transparency adaptation. Institution C reflects strong accountability, though hindered by traditional hierarchies. Institution D demonstrates effective enforcement led by an active council, despite resource limitations. These findings emphasize the critical role of

leadership, stakeholder engagement, and institutional capacity in shaping governance performance across SHSs.

Table 4: Corporate Governance Practices across SHS Institutions – Interview Insights

Theme	Institution A	Institution B	Institution C	Institution D
Governance Practices	Transparent financial reporting, inclusive decision-making, clear procurement policies	Regular stakeholder forums, structured policy monitoring	Robust oversight, routine audits, accountability culture	Active governing council leadership, rigorous enforcement
CG Challenges	Staff resistance due to limited training	Adjustment difficulties with new transparency measures	Conflict between traditional and modern CG frameworks	Resource constraints affecting implementation
Stakeholder Engagement	SMC consultations improved academic performance by 11%	Collaborative planning aligned with strategic objectives	Participatory leadership with inclusive decision-making	Ethical decisions enhanced transparency
Management Strategies	On-going CPD, digital integration for transparency	Governance training, digital tools for accountability	Inclusive dialogues, staff capacity building	Leadership development, governance reviews

Source: Author's Analysis

Document Analysis

Theme 1: SHSs' CG Practices in Ghana

The study reveals that Corporate Governance (CG) in Ghanaian Senior High Schools (SHSs) is largely shaped by institutional policies such as the *Education Act of 1961 (Act 87)* and the *Public Procurement Act of 2003 (Act 663)*, both of which provide frameworks for transparency, accountability, and financial management. Additionally, the *Auditor General's Annual Reports* have substantiated claims of governance weaknesses, specifically regarding financial mismanagement and lack of stakeholder engagement. For example, the 2021 Auditor General's Report on Education Institutions revealed that numerous SHSs, such as

Wesley Grammar and Accra Academy, had inadequate financial audits, which led to misallocated resources and weakened public trust.

Despite existing policies, critical weaknesses persist in governance structures, including insufficient board accountability and poor financial oversight. These weaknesses present risks such as resource mismanagement, which has been documented. To mitigate these governance lapses, the research advocates for best practices such as reinforcing board oversight, deepening stakeholder engagement, and implementing regular audits. These measures, coupled with stronger policy enforcement, would significantly improve the educational outcomes and financial resilience of SHSs in Ghana.

Theme 2: Challenges in SHS CG Practices in Ghana

The study's findings reveal significant challenges in the implementation of effective CG within SHSs, despite several revisions to Ghana's Education Act. A primary issue identified is the out-dated nature of governance structures, particularly the Constitution of the Board of Governors, which remains insufficiently aligned with contemporary educational needs. The study highlights key challenges such as the lack of clarity surrounding board functions, weak oversight mechanisms, unstructured stakeholder engagement, and inadequate accountability frameworks. These deficiencies contribute to inefficiencies, conflicts, and reputational damage, all of which negatively affect school performance.

The findings further emphasize the necessity for a comprehensive review of the existing governance framework to address these weaknesses. This includes clarifying the qualifications and roles of board members, strengthening their oversight responsibilities, and ensuring that stakeholder engagement is both structured and effective. Moreover, the study underscores the importance of implementing robust conflict-of-interest management processes to safeguard the integrity of decision-making within the governance structures.

Improving accountability and enhancing stakeholder engagement are identified as critical factors for fostering better educational outcomes. The research also advocates for the introduction of comprehensive training programmes aimed at equipping board members with the necessary governance skills and knowledge. Strong conflict-of-interest management protocols are deemed essential in maintaining ethical decision-making and protecting the integrity of the governance system.

Theme 3: Stakeholder Engagement and Capacity Building in SHS Governance

The findings assert that effective CG in SHSs, marked by accountability, stakeholder involvement, and strict policy compliance, is crucial for ensuring educational excellence. The Board of Governors, as the central oversight body, plays a pivotal role in formulating policies, making strategic decisions, and ensuring institutional alignment with governance principles. Strengthening board supervision, increasing stakeholder participation, and refining accountability mechanisms are critical strategies identified for enhancing governance practices.

The study further emphasizes the importance of regular monitoring of school administration by the board, with a focus on enforcing policies and evaluating school performance in areas such as operational efficiency and financial management. Incorporating diverse stakeholders—parents, teachers, and community members—into decision-making processes is shown to lead to more effective governance outcomes. Financial transparency, supported by strong internal control systems and regular audits, is highlighted as a vital factor in promoting accountability and ensuring the efficient use of resources.

Additionally, the findings stress the importance of stakeholder engagement in ensuring that a wide range of perspectives is integrated into decision-making processes. Techniques such as participatory decision-making and clear communication channels are necessary to foster inclusivity and transparency within governance structures. Clear and consistent policy communication, coupled with rigorous monitoring and enforcement mechanisms, ensures compliance with national educational standards, thereby improving overall governance outcomes and contributing to the academic success of SHSs.

Theme 4: Strategies for Effective School Management and Potential Outcome

Sub-Theme 4.1: Practical Strategies to Enhance Management of SHSs in Ghana

Effective management of Senior High Schools (SHSs) in Ghana requires the implementation of strategies that uphold governance

integrity and adhere to best practices. Essential strategies include establishing clear governance policies that define roles and responsibilities and ensure transparent decision-making processes. Communicating these policies effectively to stakeholders promotes transparency and accountability within the institution. Strengthening financial oversight is crucial. This involves implementing robust budgeting, reporting, internal controls, risk management protocols, and regular audits. Such measures ensure compliance, prudent resource use, and sustainability of the governance structure, thereby enhancing operational efficiency and overall institutional performance. Active stakeholder engagement is another key aspect. Regular forums, meetings, and feedback mechanisms should be established to involve parents, students, teachers, and community members in decision-making processes. This inclusivity supports a comprehensive approach to governance and strengthens strategic decision-making. Investing in leadership development is vital. Programmes should focus on enhancing governance skills through workshops, mentoring, and performance evaluations. This fosters a culture of continuous improvement and drives school performance. Building a positive school culture that emphasizes ethical conduct and professionalism is essential. Governance policies should enforce high standards of behaviour to create an environment conducive to academic excellence.

Sub-Theme 4.2: Potential Benefits and Outcomes of Effective SHSs Governance Practices

Effective corporate governance (CG) practices in SHSs lead to numerous benefits. A robust culture of accountability aligns school operations with institutional goals, optimizing resource utilization and improving financial management. This ensures adequate infrastructure and resources for teaching and learning. Enhanced stakeholder engagement fosters inclusivity and addresses diverse needs, strengthening relationships and promoting a sense of shared responsibility. This inclusivity builds trust and cooperation, essential for achieving the school's educational mission. Adherence to ethical conduct contributes to a positive school environment, discouraging negative practices such as favouritism and corruption. This ethical foundation enhances the institution's credibility and reputation. Moreover, effective governance practices contribute to improved

educational outcomes. SHSs with strong governance, leadership, and financial management are better positioned to excel academically. Strategic planning, continuous improvement, and accountability ensure that schools adapt to evolving needs and implement reforms that enhance the learning experience.

Documented Governance Insights in SHS Institutions

Table 5 synthesizes governance themes from policy documents and audit reports, highlighting foundational frameworks, implementation challenges, and strategic imperatives. It shows that although SHS governance is grounded in key legislation like the Education Act (1961) and Public Procurement Act (2003), institutional performance varies significantly. Irregular audits, out-dated structures, and limited stakeholder coordination undermine accountability in many schools. Conversely, schools with formalized stakeholder engagement and leadership development strategies demonstrate stronger resource management and institutional credibility.

Table 5: Governance Themes from Document Review

Theme	Policy Basis/Findings	Institutional Observations
SHS CG Frameworks	Grounded in Education Act (1961) & Public Procurement Act (2003)	Auditor-General reports cite irregular audits in schools like Wesley Grammar
Key Challenges	Out-dated governance structures, unclear board roles, weak oversight	Lack of role clarity and stakeholder confusion undermines accountability
Stakeholder Engagement	Emphasizes Board of Governors' role in oversight and strategy	Effective policies seen where broad stakeholder input is formalized
Strategic Management	Advocates leadership development, conflict-of-interest controls, and regular audits	Institutions with strong CG report better resource use and reputational standing

Source: Author's Analysis

Summary of Results

This study reveals significant insights into how governance reforms can enhance educational outcomes in Ghanaian SHSs. The findings, derived from document analysis and semi-structured interviews, are organized around four major themes, addressing each research question (RQ) with specific, actionable strategies.

Theme 1: SHSs' CG Practices in Ghana
RQ1: *What are the current CG practices in Ghanaian SHSs, and how do they compare with best practices?*

The analysis shows that CG practices in SHSs are guided by national policy instruments, such as the Education Act and Public Procurement Act, emphasizing transparency, financial integrity, and stakeholder accountability. However, institutional variations reveal inconsistent enforcement and limited alignment with international CG standards. Interviews confirmed that while some schools operationalize inclusive decision-making and audit compliance, others lack board engagement and transparency. Strengthening board oversight, formalizing financial controls, and enhancing participatory models are recommended to align local governance practices with global benchmarks.

Theme 2: Challenges in SHS CG Practices in Ghana
RQ2: *What structural and operational challenges impede effective CG in SHSs?*

Despite reforms, governance implementation is hindered by out-dated board constitutions, ambiguous role definitions, and capacity constraints. These issues, noted in both policy documents and interviews, result in weak oversight, decision-making inefficiencies, and stakeholder disengagement. Addressing these gaps requires clarifying governance mandates, institutionalizing conflict-of-interest protocols, and introducing capacity-building initiatives for board members.

Theme 3: Stakeholder Engagement and Capacity Building in SHS Governance
RQ3: *How can stakeholder participation and human resource development contribute to more effective governance in SHSs?*

The study reveals that meaningful stakeholder participation is vital for effective SHS governance. Moving beyond token consultation, active

involvement from parents, students, teachers, and the community ensures diverse perspectives are considered in decision-making processes, fostering inclusivity and transparency. This participatory approach leads to more informed and balanced decisions that align with institutional objectives. Regular performance evaluations, combined with policy enforcement, strengthen governance by holding school leaders accountable. Capacity building is equally crucial; leadership training and governance skills development for school administrators and staff drive continuous improvement, ultimately enhancing SHS operational efficiency. Human resource development fosters competent leaders capable of steering schools towards better governance outcomes.

Theme 4: Strategies for Effective School Management and Potential Outcomes

RQ4: *What is the impact of core CG principles like transparency and accountability on the management and performance of SHSs?*

Stakeholder participation is critical to effective governance. Inclusive engagement of parents, staff, and community actors enhances decision legitimacy. Data show that institutions with structured stakeholder involvement report stronger alignment with educational goals and improved student outcomes. Leadership training and governance capacity development are pivotal to sustaining these gains.

Discussion

This study critically evaluated CG practices within Ghanaian SHSs, benchmarked against global best practices as articulated by Appiah (2020). CG in educational institutions is essential for fostering transparency, accountability, inclusive stakeholder participation, financial discipline, and strategic planning. Despite the acknowledged significance of these principles, the study uncovered substantial deficiencies in SHS governance frameworks, notably in financial transparency, board oversight, stakeholder engagement, and parental and community involvement. These governance gaps mirror the concerns raised by Kultsum and Wang (2021), highlighting risks of resource mismanagement, ethical lapses, and diminished institutional credibility and performance.

Weak board oversight emerged as a key contributor to financial mismanagement and suboptimal resource allocation, undermining public confidence, consistent with prior findings on governance

shortcomings in education (Kultsum & Wang, 2021). In response, recommendations by Agbeme and Baiden (2021) and Aryeh-Adjei (2021) emphasize the imperative to strengthen stakeholder engagement, enhance board competency through targeted training, institutionalize routine financial audits, and deepen parental and community participation in governance processes.

Effective inclusivity necessitates strategic interventions: first, broadening governing board representation to encompass students, teaching and non-teaching staff, with gender balance and specialized subcommittees (FoEh, Permatasari, & Sinaga, 2022); second, establishing structured stakeholder forums such as parent assemblies, student parliaments, and teacher advisory groups to ensure responsive governance (Ramírez & Tejada, 2018), supplemented by digital platforms to enhance transparency (Chen & Smith, 2019); third, transparent dissemination of financial and governance reports in accessible formats; and finally, leadership development programmes fostering participatory and ethical governance to institutionalize inclusivity (Mrabure & Abhulimhen-Iyoha, 2020).

Strengthening SHS governance demands a comprehensive approach integrating transparency, accountability, ethical leadership, and professionalism, as underscored by Dampson & Afful-Broni (2018) and Dwangu and Mahlangu (2021), to ensure sustainable educational excellence.

Conclusion and Recommendations

This study establishes that CG shortcomings, ranging from structural inefficiencies to weak accountability—pervade Ghana's Senior High School (SHS) landscape, albeit with nuanced manifestations across public, technical, and private institutions. Public SHSs often suffer from bureaucratic inertia and insufficient board oversight, while technical schools are hindered by resource constraints and inadequate policy adaptation. Private SHSs, although more agile, frequently lack structured regulatory supervision. These disparities threaten financial transparency, institutional performance, and equitable access, underscoring the urgent need for tailored governance reform.

Enhancing CG Practices in SHSs (RQ1): Capacity-building interventions should prioritize public and technical schools where governance maturity remains low. Establishing board member training programmes in finance, ethics, and regulatory compliance is critical.

Technical institutions particularly require funding partnerships with NGOs and donor agencies to overcome resource limitations. Regular, publicly disclosed audits should be institutionalized, although private schools may resist such transparency without regulatory incentives or enforcement.

Improving the Regulatory, Legal, and Policy Framework (RQ2): Reforming the Pre-Tertiary Education Act (Act 1049) must account for institutional diversity. Governance statutes should be revised to clarify board roles and qualifications, especially in public schools with entrenched traditional structures. Strategic policy advocacy and phased implementation can mitigate institutional resistance and foster alignment with global CG benchmarks.

Strengthening Stakeholder Engagement and Capacity Building (RQ3): Engagement mechanisms must reflect local context. In rural technical schools, low digital penetration requires mobile-based platforms for community involvement. Expanding programmes like T-TEL can equip administrators with governance competencies, especially in under-resourced institutions. Leadership development and participatory governance must be embedded within school culture.

Strategies for Effective School Management (RQ4): Institution-specific governance diagnostics should guide regular performance reviews. Public SHSs require targeted professional development to address monitoring shortfalls, while technical schools would benefit from structured evaluations to enhance operational integrity. Ethical leadership, sustained through transparent reporting and stakeholder feedback loops, will be pivotal to long-term institutional resilience.

References

Aboagye, G. K., & Ahmed, H. (2019). Teacher participatory decision-making in schools: A pre-requisite for democratic governance in Ghanaian second cycle educational institutions. *Journal of Educational Development and Practice, 3*(3), 25-44.

Acquah, T. N. (2017). *Governance, financial control and financial irregularities in senior high schools in Ghana* [Unpublished doctoral dissertation]. University of Cape Coast, Ghana.

Addink, H. (2019). *Good governance: Concept and context*. (1st ed.), Oxford University Press.

Addo, P. K. (2019). Review of Ghana's educational policies and its implication for educational leadership in developing countries. *International Journal of Psychology and Education (IJOPE), 2*, 77-85.

Agbeme, F. N., & Baiden, B. K. (2021). *Assessing the role of stakeholders in the implementation of community day senior high school.* [Unpublished doctoral dissertation]. KNUST, Ghana.

Akrong, H. (2022). *Education policy reform in Ghana and the role of avatime traditional leaders.* [Unpublished doctoral dissertation]. Walden University, UK.

Amadi, K., Abali, S. O., & Igoni, C. G. (2022). Meeting global demands in educational management and planning for effective administration of universities in Rivers State. *Rivers State University Faculty of Education Conference Journal*. 2(1), 342-359.

Amakyi, M. (2022). School governing board in the management of senior high schools in Cape Coast, Ghana. *International Journal of Education and Research, 10*(7), 73-84.

Ampofo, J. A., Amoah, S. T., & Peprah, K. (2020). Examination of the current state of government buildings in senior high schools in Wa Municipal. *International Journal of Management & Entrepreneurship Research, 2*(3), 161-193.

Appiah, P. G. (2020). *Exploring the lived experiences of leadership practices of senior high school heads in Cape Coast Metropolis, Ghana.* [Unpublished doctoral dissertation]. University of Cape Coast, Ghana.

Areneke, G., Khlif, W., Kimani, D., & Soobaroyen, T. (2022). Do corporate governance codes matter in Africa? In *Research Handbook on corporate board decision-making.* pp. 273-301, Edward Elgar Publishing. https://doi.org/10.4337/9781800377189.00023.

Aryeh-Adjei, A. B. I. G. A. I. L. (2021). Community participation in school management in Ghana. *Journal of Interdisciplinary Studies in Education, 10*(SI), 79-95. https://ojed.org/index.php/jise/article/view/2873

Auditor-General. (2021). *Report of the Auditor-General on the public accounts of Ghana: Pre-university educational institutions for the financial year ended 31 December, 2021*. https://audit.gov.gh/files/audit_reports/Report_of_the_Auditor-General_on_the_Public_Accounts_of_Ghana,_Pre-University_Educational_Institutions_for_the_financial_year_ended_31_December_2021.pdf

Ayeni, A. J., & Bamire, F. B. (2022). The role of school based management and students' academic performance in secondary schools in Owo Local Government Area of Ondo State, Nigeria. *International Journal of Education, Teaching, and Social Sciences*, *2*(3), 49-63.

Bayer, A., & Wilcox, D. W. (2019). The unequal distribution of economic education: A report on the race, ethnicity, and gender of economics majors at US colleges and universities. *The Journal of Economic Education*, *50*(3), 299-320.

Blackmore, J., MacDonald, K., Keddie, A., Gobby, B., Wilkinson, J., Eacott, S., & Niesche, R. (2022). Election or selection? School autonomy reform, governance and the politics of school councils. *Journal of Education Policy*, *38*(4), 547-566. https://doi.org/10.1080/02680939.2021.2022766.

Boadu, G. (2022). Why was inquiry practice not there? Analysis of demand-resource empirics of classroom pedagogy. *Educational Review*, *76*(4), 1-25. https://doi.org/10.1080/00131911.2022.2066631.

Boon, J. (2018). Moving the governance of shared service centres (SSCs) forward: Juxtaposing agency theory and stewardship theory. *Public Money & Management*, *38*(2), 97-104.

Braun, V., & Clarke, V. (2022). *Thematic analysis: A practical guide*. Sage.

Brown, M., McNamara, G., O'Brien, S., Skerritt, C., & O'Hara, J. (2020). Policy and practice: Including parents and students in school self-evaluation. *Irish Educational Studies*, *39*(4), 511-534.

Chea, P. (2021). *Permeability in Cambodian post-secondary education and training: A growing convergence*. Cambodia Development Resource Institute, Working Paper Series, No. 130.

Chen, H. and Smith, S.H. (2019). School board directors' information needs and financial reporting's role. *Journal of Public*

Budgeting, Accounting & Financial Management, *31*(4), 578-595. https://doi.org/10.1108/JPBAFM-09-2018-0097.

Dampson, D. G., & Afful-Broni, A. (2018). Teacher participation in school decision-making in Ghanaian basic schools: Looking back and moving forward, what stakeholders say? *International Journal of Educational Studies*, *5*(2), 91-102.

Dwangu, A. M., & Mahlangu, V. P. (2021). Accountability in the financial management practices of school principals. *International Journal of Educational Management*, *35*(7), 1504-1524.

FoEh, J. E., Permatasari, D. A., & Sinaga, J. (2022). Corporate governance in need of reforms: What areas of the system should be reformed first and how? *European Research Studies Journal*, *10*(4), 73-81.

García, E., & Weiss, E. (2019). *Challenging working environments ("school climates"), especially in high-poverty schools, play a role in the teacher shortage.* The fourth report in The Perfect Storm in the Teacher Labor Market series, pp. 1–25. Economic Policy Institute.

Parliament of the Republic of Ghana. (2008). *GES Amendment Act, Act 788 (2008)*. https://sapghana.com/data/documents/Education-Act-778.pdf

Ghana Education Service. (2022). *Ghana senior high school annual digest for 2020*. Ministry of Education, Ghana.

Ghana Education Service. (2023). *Ghana's education sector report 2022*. Ministry of Education, Ghana.

Grigoropoulos, J. E. (2019). The Role of Ethics in 21st Century Organizations. *International Journal of Progressive Education*, *15*(2), 167-175.

Harun, M. K. (2021). *Institutional Factors and Strategy Implementation in Public Secondary Schools in Selected Counties in Kenya* [Unpublished doctoral dissertation]. KeMU.

Sambu, K. J., Minja, D., & A Chiroma, J. (2021). Value-based leadership across teachers' ranks and its significance in schools: A case of primary schools in Kajiado North, Kenya. *International Journal of Organizational Leadership*, *10*, 44-66.

Kultsum, U., & Wang, T. (2021). School governance and leadership challenges in Indonesian Islamic senior high schools. In 1st (ed.), *School Governance in Global Contexts*. Routledge, 102-121.

Kwaah, C. Y., & Nishimuko, M. (2023). Improving school quality in junior high schools in Ghana: Teachers' myth and reality of a decentralization policy. *SAGE Open*, *13*(3), 1-13. https://doi.org/10.1177/21582440231188559

Liu, S., & Yin, H. (2023). How ethical leadership influences professional learning communities via teacher obligation and participation in decision making: A moderated-mediation analysis. *Educational Management Administration & Leadership*, *51*(2), 345-364.

Manu, B. D., Zhang, H., Oduro, D., Krampah-Nkoom, A., Mensah, I. A., Anaba, O. A., & Isaac, A. (2020). School board efficiency in financial management and human resource in public senior high schools: evidence from Ashanti Region, Ghana. *Int'l J. Soc. Sci. Stud.*, *8*(1), 79-89.

Mrabure, K. O., & Abhulimhen-Iyoha, A. (2020). Corporate governance and protection of stakeholders rights and interests. *Beijing Law Review*, *11*(1), 292-308. 10.4236/blr.2020.111020.

Mulandi, Q. W. (2022). *Determinants of strategic plan implementation in public secondary schools in Katulani sub-county, Kitui county* [Unpublished doctoral dissertation]. South Eastern Kenya University).

Mwinkaar, L., & Ako, M. (2020). Female education in senior high schools in Gomoa West District of the Central Region of Ghana: The perspective of the female students. *Social Education Research*, *1*(1), 39–47. https://doi.org/10.37256/ser.112020157.39-47

Ngigi, S. K. E., & Tanui, P. J. (2019). *Principals' financial management practices, educational administration and performance in selected secondary schools in Kenya. Nairobi.* [Unpublished master's Thesis]. Kenya Methodist University, Kenya.

Parliament of the Republic of Ghana. (2020). *Pre-Tertiary Education Act, Act 1049 (2020).*

https://africaeducationwatch.org/uploads/publications/publication-30.pdf

Public Services Commission of Ghana. (2023). *Corporate governance manual*. Retrived from: https://psc.gov.gh/manuals/. Accessed: 2023, May 5

Quist, H. O. (1999). Secondary education in Ghana at the dawn of the twenty-first century: Profile, problems, prospects. *Prospects*, *29*(3), 424-442.

Ramírez, Y., & Tejada, Á. (2018). Corporate governance of universities: Improving transparency and accountability. *International Journal of Disclosure and Governance*, *15*, 29-39.

Salifu, I. (2022). State-funded secondary education policy: Implications for private school management in Ghana. *Leadership and Policy in Schools*, *21*(4), 719-732.

Sambu, J. K., Minja, D., & Chiroma, J. A. (2021). Value-based leadership across teachers' ranks and its significance in schools: A case of primary schools in Kajiado North, Kenya. *International Journal of Organizational Leadership*, *10*(Special Issue 2021), 44-66.

Sari, M., Qorib, M., Harahap, S. H., & Jufrizen, J. (2018). Good governance in private university in Medan City. *International Journal of Research in Business and Social Science (2147-4478)*, *7*(4), 21-29.

Shibuya, K. (2022). *Community participation in school management: Relational trust and educational outcomes*, (1st ed.), Routeledge.

Solomon, J. (2020). *Corporate governance and accountability* (5th ed.). John Wiley & Sons.

Takyi, S. A., Azerigyik, R. A., & Amponsah, O. (2019). The effects of multi-track year-round education on the delivery of senior high school education in Ghana. Lessons from global MT-YRE systems. *International Journal of Educational Development*, *71*, 102-120.

Tang, S., & Higgins, C. (2022). Do not forget the "How" along with the "What": Improving the Transparency of Sustainability Reports. *California Management Review*, *65*(1), 44-63.

Tetteh, L. A., Agyenim-Boateng, C., Simpson, S. N. Y., & Susuawu, D. (2021). Public sector financial management reforms in Ghana: Insights from institutional theory. *Journal of Accounting in Emerging Economies*, *11*(5), 691-713.

Thompson, R. M., Alleyne, P., & Charles-Soverall, W. (2019). Exploring governance issues among boards of directors within state-owned enterprises in Barbados. *International Journal of Public Sector Management*, *32*(3), 264-281.

UNESCO Institute for Statistics. (2023). *Other policy relevant indicators*. http://data.uis.unesco.org/Index.aspx?DataSetCodeEDULIT_DS&popupcustomisetrue&langen

Yamoah, L. (2023). *Effects of Political Transition on the Education System in Ghana: An Analysis of the Fourth Republic* [Unpublished Master's thesis]. University of Windsor, Canada.

Call for Papers

The Ghana Journal of Education: Issues and Practice is an official journal of the College of Education Studies, University of Cape Coast. This peer reviewed journal aims to provide a credible platform for educational researchers to share their research and other scholarly works. The journal is dedicated to research studies on education in Ghana and other African countries. Research studies on issues and practice in education conducted in contexts other than Ghana or Africa should provide relevance of the study to the Ghanaian or African context. The journal publishes original research, review of scholarly concepts and papers in diverse areas of education including, innovative and best practices in teaching and learning across the curriculum in diverse settings, assessment and evaluation issues, analysis of educational policies and their implementation, and developmental and sustainability issues in education. The journal is published in print once a year in December.

Author Guidelines

Interested persons are invited to submit scholarly manuscripts/ articles/papers for consideration and publication in the journal. Authors should refer to the guidelines below and adhere to them.

Submission of Manuscripts

1. Articles/ papers/manuscripts should be submitted in English.
2. Manuscripts are accepted for consideration with the understanding that they are original material and are not under consideration for publication elsewhere.
3. A separate title page must be provided to enhance peer review. The title page must have the title of paper, names of all authors, their affiliation, mail postal address, email address, phone and fax numbers. An asterisk should be placed against the name of the corresponding author in the case of joint authorships.
4. Manuscripts containing the title of the paper should be saved in both Word and PDF files and sent to the Editor-in-Chief via the email address: gje@ucc.edu.gh. The author(s) name(s) should not appear anywhere in the manuscript. The author(s) should use “author(s)” any time he/she/they cite(s) his/her/their work in the manuscript.

5. Length of Abstract: An abstract of not more than 200 words must accompany the article.
6. Key words: four to six keywords must be stated. These should be separated by a semicolon.
7. Length of manuscripts: The length of the manuscripts should – not be more than 12 000 words
8. Font size and line spacing: The manuscripts should be double spaced and of Times New Roman font size of 12 on A4 sheet with margins of 4.0 centimetres on the left and 2.5centimeters on the right, top and bottom.
9. Authors are responsible for all statements made in their work and for obtaining permission from copyright owners to reprint or adapt tables or figures or to print a quotation of 500 words or more.
10. Language, in text references, format and symbols/letters/ equation/transcriptions and references must conform to the style of the publication manual of the American Psychological Association 6th Edition.
11. The structure of a typical empirical study should include Background to the study, which entails the statement of the problem being investigated. Normally, the background should summarize relevant research to provide context, and explain what other authors' findings, if any, are being challenged or extended. Purpose of the study, Research Question(s)/Hypotheses, Methodology, Results, Discussion, Conclusion and Recommendation/Implication. Acknowledgement may be included for funded projects.
12. All manuscripts received will be acknowledged promptly. Feedback on manuscript from reviewers will be communicated to the corresponding author.
13. Rolling deadline for submission: Manuscripts are welcome throughout the year.

Publication Fees

On acceptance of manuscript for publication Ghanaian authors will be required to pay a publication fee of GH₵300 while foreign authors pay $150. Authors will be given a copy of the issues in which their articles are published.

Queries

For further information/ clarification, please contact the Editor -in-Chief:

Prof. Ernest Kofi Davis
Institute of Education
School of Educational Development and Outreach
College of Education Studies
University of Cape Coast
Cape Coast
Ghana

Email: gje@ucc.edu.gh
Telephone: +233 (03321) 36925
Mobile: +233 248 155 451