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

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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

| | B | S.E. | Wald | Df | Sig. | Exp(B) | 95% C.I. for 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.

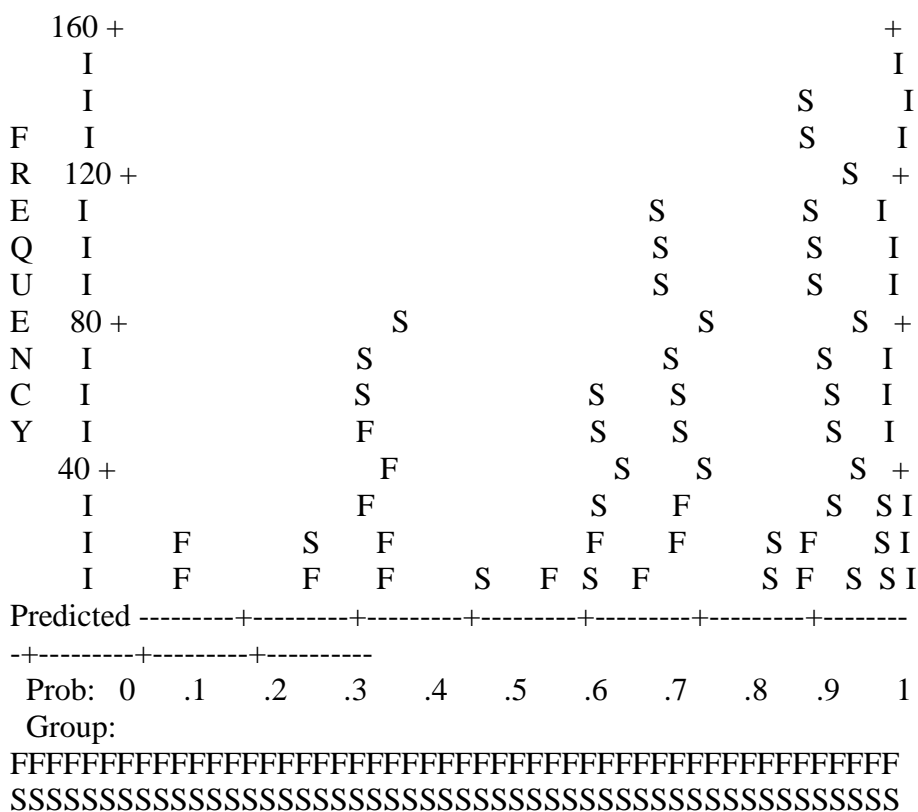**Table 5: Hosmer and Lemeshow Test**

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

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    160 +                                                    +
      I                                                      I
      I                                             S        I
F     I                                             S        I
R   120 +                                                S   +
E     I                                   S             S    I
Q     I                                   S             S    I
U     I                                   S             S    I
E    80 +                S                     S           S +
N     I             S                          S          S  I
C     I             S                 S        S          S  I
Y     I             F                 S        S          S  I
     40 +              F                 S       S          S +
      I                F                 S       F        S  S I
      I       F      S      F            F       F      S F  S I
      I       F         F     F      S   F S  F        S F  S S I
Predicted ---------+---------+---------+---------+---------+---------+--------
-+---------+---------+----------
 Prob:  0    .1     .2     .3     .4     .5     .6     .7     .8     .9     1
 Group:
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
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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.

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