

Readiness of Graduating Education Students for the Licensure Examination for Teachers in General Education Mathematics at HGBaquiran College

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Abstract The readiness for the Licensure Examination for Teachers (LET) serves as an important indicator of the effectiveness of teacher education programmes and the preparedness of graduating students for professional practice. An assessment of the readiness of graduating education students in General Education Mathematics was conducted among 97 fourth-year students of HGBaquiran College using a competency-based comprehensive examination aligned with the Table of Specifications. A descriptive research design was employed, utilizing descriptive statistics, item difficulty analysis, and a one-sample t-test to analyze the data collected. The findings indicated that the respondents demonstrated an overall low level of readiness, obtaining a mean score of 19.53 (SD = 8.01) or 39.06%, which was substantially below the expected passing score of 38 (75%). Only 6.19% of students achieved the required proficiency level. Among the assessed competencies, Least Common Multiples and Greatest Common Factor obtained the highest performance (60.82%), whereas Capacity, Perimeter, and Weight were identified as the most challenging competency areas. The one-sample t-test further revealed a statistically significant difference between the observed readiness and the expected proficiency level ($t(96) = -22.71, p < .001$), suggesting that the respondents had not yet attained the mathematical competence required for the LET to pass. These findings underscore the importance of implementing competency-based review programs, targeted remediation, and continuous formative assessment to strengthen students' mathematical competencies and improve their readiness for licensure examinations. The results may also serve as a basis for enhancing institutional review programs and curriculum improvement initiatives in teacher education in the future.

Keywords: *General Education Mathematics; Licensure Examination for Teachers (LET); mathematics readiness; teacher education; comprehensive examination*

INTRODUCTION

The Licensure Examination for Teachers (LET) is a key requirement for individuals wishing to enter the teaching profession in the Philippines. It also serves as an important measure of the effectiveness of teacher education institutions (TEIs), as graduate performance in the LET reflects the quality of the teacher preparation programs. One of its major components, General Education Mathematics, requires both conceptual understanding and the ability to apply mathematical skills in real-life and teaching situations. However, passing the LET is not determined solely by academic performance. Previous studies have shown that factors such as confidence, preparation strategies, and access to learning resources influence outcomes. Despite these efforts, concerns remain regarding low passing rates and insufficient mathematical readiness among graduating education students. Teacher education programs attempt to address these challenges by aligning their curricula with LET competencies and providing review programs. While pre-LET examinations and structured reviews have been found to improve performance, not all institutions are equally successful in addressing students' learning gaps,

particularly in mathematics. At HGBaquiran College, the results show that fourth-year education students demonstrated low readiness in General Education Mathematics. The average score was 19.5, which was below the expected passing level. Students performed relatively well in topics such as least common multiples and greatest common factors but showed difficulties in areas such as capacity, perimeter, and weight. Statistical analysis further revealed a significant gap between students' actual performance and the expected proficiency levels. Although previous studies have examined the factors affecting LET performance, limited research has focused on actual readiness using competency-based assessments aligned with the Table of Specifications (TOS). There is also a lack of studies that identify specific strengths and weaknesses in mathematics and examine the gap between observed readiness and expected standards at the institutional level. Therefore, this study aimed to assess the readiness of graduating education students in General Education Mathematics, identify areas of strength and difficulty, and determine the gap between actual performance and expected proficiency. The findings are expected to support the improvement of instructional strategies and preparation programs for future LET-takers.

RESEARCH QUESTIONS

This study aims to assess the readiness of fourth-year students in General Education Mathematics at HGBaquiran College. Specifically, it seeks to answer the following questions:

1. What is the current level of readiness of fourth-year students in General Education Mathematics at HGBaquiran College in terms of the table of specifications?
2. What is the score of the students in the comprehensive exam?
3. What learning area do students excel in the most?
4. What learning areas do students experience difficulties in?
5. What is the difference between the observed readiness in Gen Ed mathematics among fourth-year students and the expected proficiency level?

REVIEW OF RELATED LITERATURE

Predictors of LET Performance and Academic Readiness

The relationship between academic performance and LET (Licensure Examination for Teachers) results indicates that pre-LET examination scores are significant predictors of success on the LET itself. A study analyzing graduates in the Philippines revealed that performance in pre-LET exams, particularly in general and professional education components, strongly correlates with and predicts outcomes in the LET with high confidence through regression analysis (Fiscal & Roman, 2022). This suggests that pre-LET exams provide valuable insights into the candidates' academic readiness and potential licensure success. Beyond exam scores, factors such as study habits, prior knowledge, and academic foundation substantially influence LET performance. Studies in medical and occupational therapy education illustrate that effective study behaviors, including strategic approaches and avoiding surface learning methods, improve examination outcomes (Bin Abdulrahman et al., 2021; Bonsaksen et al., 2021). Additionally, prior academic achievements, including cumulative GPA and specific course grades, correlate moderately to strongly with licensure-related exams, indicating that a solid academic foundation supports readiness (Rashidi et al., 2025). However, academic grades alone have limitations as sole predictors of readiness. Psychological factors such as motivation and test anxiety, as well as the quality of study approaches, significantly affect academic performance but may not be fully captured by grades (Akturan et al., 2025; Shin et al., 2023). Furthermore, environmental factors, learning experiences, and exam scheduling can impact performance and satisfaction, underscoring that readiness is multifactorial and not solely dependent on grades (Kusmiati et al., 2023; Schmidt et al., 2022). LET success is best predicted by pre-LET performance combined with effective study habits and a strong academic foundation, while acknowledging that grades alone inadequately reflect full academic readiness.

Factors Affecting Readiness in General Education Mathematics

Students' Confidence, Motivation, and Math Anxiety Mathematics anxiety can present a considerable challenge to readiness, as it may adversely affect learners' confidence and motivation. Prospective primary school teachers often experience high levels of both academic and pedagogical mathematics anxiety, particularly with complex subjects, such as algebra and geometry. This anxiety often originates from negative past experiences, societal stereotypes, and low self-efficacy, which can lead to avoidance of challenging concepts and hinder effective teaching (Pahmi et al., 2025). Conversely, technological interventions, such as conversational agents, have shown promise in significantly reducing math anxiety by promoting experiential learning and providing affective support, thereby enhancing students' confidence and motivation to engage with mathematics (Tan et al., 2025). Additionally, adaptive learning systems that capitalize on motivation and learner interest demonstrate improved outcomes, highlighting the combined effect of psychological readiness factors on learning effectiveness (Lin et al., 2025).

Effect of Teaching Strategies and Instructional Quality Instructional strategies play a crucial role in mathematical readiness. Structured pedagogical scaffolding, such as the flipped classroom model integrated with scaffolding and technology, enhances comprehension and active discussion, leading to improved geometry achievement among pre-service teachers (Awi et al., 2024). At the preschool level, specific scaffolding domains, particularly classroom management and organization, are positively linked to early math achievement, supporting the idea that instructional quality and classroom environment shape foundational math skills (Montoya et al., 2025). Furthermore, encouraging autonomy, competence, and relatedness through inquiry-based tasks aligned with Self-Determination Theory optimizes motivation and engagement in primary math education (Hubbard et al., 2026). AI tools and technologies in primary math classrooms enable personalized instruction, interactive learning, and clearer visualization. Teachers' readiness and attitudes are crucial for successful implementation and enhancing students' learning and understanding (Zhao et al., 2025). Technology-enriched environments foster engagement and cater to diverse needs by emphasizing resource availability and instructional support for readiness. An overemphasis on memorization can contribute to math anxiety and undermine understanding, which is essential for competence and teaching confidence. Persisting practices focusing on memorization may impede learners' ability to navigate complex concepts, necessitating reforms that prioritize meaning-making and higher-order thinking (Pahmi et al., 2025). Effective scaffolding and technology can assist learners in moving beyond memorization, facilitating mastery, and reducing cognitive load.

Preparation Strategies and Institutional Support for LET

Preparation strategies and institutional support play a significant role in influencing Licensure Examination for Teachers (LET) outcomes. Review programs, including review centers and self-review methods, have shown effectiveness in enhancing examinees' academic preparation by fostering self-efficacy, metacognitive awareness, and organizational skills essential for mastering test content (Parmigiani et al., 2025). Aligning the curriculum with LET competencies further enhances preparation by ensuring that instructional content systematically targets the knowledge and skills required for the exam, thereby reinforcing relevant competencies through structured learning pathways. Peer support, mentoring, and guided review contribute notably by creating environments for collaborative learning, feedback, and motivation, which, along with social-emotional learning strategies, help reduce test anxiety and elevate learners' preparedness and confidence (Balakrishnan et al., 2021; Mcleod & Boyes, 2021). Institutional interventions aimed at improving mathematics readiness—critical due to the exam's quantitative demands—include targeted tutorials and supplementary instruction that address specific gaps, empowering examinees with problem-solving strategies and self-regulated learning skills. These interventions promote autonomous learning and self-regulation, which are linked to better academic outcomes and resilience in high-stakes testing contexts (Chen et al., 2024; Núñez-Naranjo et al., 2025). Collectively, these preparation and support mechanisms establish a comprehensive framework that enhances exam confidence, cognitive skills, and academic performance in LET candidates.

METHODS

Research Design

This study employed a descriptive research design to assess the readiness of graduating education students in General Education Mathematics for the Licensure Examination for Teachers (LET). The descriptive design was appropriate because it enabled the researcher to systematically describe the students' level of readiness, identify their areas of strength and difficulty across the different mathematics competencies, and determine whether their observed performance significantly differed from the expected proficiency level. The design did not involve the manipulation of variables but instead focused on describing and analyzing the existing condition of the respondents based on their comprehensive examination results.

Research Locale and Participants

This study was conducted at HGBaquiran College during the academic year 2024–2025. The respondents consisted of 97 graduating fourth-year Bachelor of Elementary Education (BEEd) and Bachelor of Secondary Education (BSEd) students who were prospective takers of the Licensure Examination for Teachers (LET). Since the total number of graduating education students was manageable, the study employed complete enumeration, allowing all eligible students to participate in the assessment. This approach ensured that the findings accurately represented the entire population of graduating education students in the institution.

Research Instrument

The primary instrument used in the study was a 50-item General Education Mathematics Comprehensive Examination developed based on the Table of Specifications (TOS) prescribed for the Licensure Examination for Teachers (LET). The examination covered the major mathematics competencies included in the LET, such as least common multiples and greatest common factors, operations with whole numbers, decimals, fractions, and integers, prime factorization, divisibility rules, ratio and proportion, percentage, area, perimeter, volume, weight, and capacity. Prior to its administration, the instrument was reviewed by mathematics faculty members and LET reviewers to establish its content validity and ensure that the test items were aligned with the prescribed learning competencies.

Data Gathering Procedure

Prior to the conduct of the study, permission was obtained from the administration of HGBaquiran College to administer a comprehensive examination to graduating students. After securing the necessary approval, the researcher administered the test under standardized examination conditions to ensure fairness and consistency in data collection. Upon completion of the examination, the answer sheets were checked using the official answer key, and individual scores were recorded. The collected data were subsequently encoded, verified for accuracy, and organized for statistical analysis.

Statistical Treatment of Data

The collected data were analyzed using descriptive and inferential statistical techniques. Frequency and percentage were used to determine the respondents' performance level across the general education mathematics competencies. The mean, standard deviation, median, minimum score, and maximum score were computed to describe the overall performance of the respondents in the comprehensive examination. The difficulty index (p-value) was calculated to determine the relative difficulty of each mathematics competency and to identify the students' strongest and weakest learning areas. Finally, a one-sample *t*-test was employed to determine whether a significant difference existed between the observed readiness of the respondents and the expected proficiency level of 75% (38 of 50 points). All statistical analyses were conducted at a significance level of 0.05.

RESULTS AND DISCUSSION

Table 1. Performance of Graduating Education Students Across General Education Mathematics Competencies

Mathematics Competency	Correct Answers (f)	Percentage Correct (%)	Interpretation
Least Common Multiples and Greatest Common Factor	236	60.82	Moderate Readiness
Operations with Whole Numbers, Decimals, Fractions, and Integers	189	48.71	Low Readiness
Prime Factorization	179	46.13	Low Readiness
Divisibility Rules	170	43.81	Low Readiness
Prime, Composite, and Denominate Numbers	170	43.81	Low Readiness
Percentage, Rate, and Base	156	40.21	Low Readiness
Ratio and Proportion	178	36.70	Low Readiness
Area	134	34.54	Low Readiness
Volume	129	33.25	Low Readiness
Weight	123	31.70	Low Readiness
Perimeter	132	27.22	Low Readiness
Capacity	90	23.20	Low Readiness

Table 1 shows the readiness of graduating education students across the General Education Mathematics competencies. Least Common Multiples and Greatest Common Factor recorded the highest percentage of correct responses (60.82%), indicating moderate readiness, while all other competencies were classified as low readiness. Capacity (23.20%), Perimeter (27.22%), and Weight (31.70%) emerged as the weakest areas, indicating notable learning gaps, particularly in measurement-related concepts. None of the competencies reached the expected 75% proficiency level, suggesting that the students had not yet achieved adequate preparation for the General Education Mathematics component of the Licensure Examination for Teachers (LET). This finding supports Fiscal and Roman (2022), who emphasized that competency mastery and pre-licensure performance are important indicators of LET success. It also highlights the need for targeted remediation, systematic review, and appropriate instructional support to strengthen mathematical competence (Pahmi et al., 2025). In this context, Ramilo and Anselmo (2025) highlighted the potential of interactive supplementary materials to complement traditional mathematics instruction and provide engaging learning opportunities. Integrating such supplementary resources into competency-based review programs may therefore provide additional support in addressing identified learning gaps and strengthening students' preparation for the LET.

Table 2. Overall Performance of Graduating Education Students in the Comprehensive Examination

Descriptive Statistic	Value
Number of Examinees (n)	97
Mean Score	19.53
Standard Deviation (SD)	8.01
Median Score	17.87
Minimum Score	5.00
Maximum Score	44.00
Passing Score	38.00
Mean Percentage Score	39.06%
Students Passed	6 (6.19%)
Students Failed	91 (93.81%)
Verbal Interpretation	Low Readiness

Table 2 presents the overall performance of graduating education students in the General Education Mathematics comprehensive examination. The respondents obtained a mean score of 19.53 (SD = 8.01), equivalent to a mean percentage score of 39.06%, which is considerably lower than the required passing score of 38 points (75%). Only six students (6.19%) achieved the passing score, whereas 91 students (93.81%) failed to meet the expected proficiency level, indicating an overall low level of readiness for the Licensure Examination for Teachers (LET). These findings suggest that the respondents require strengthened review programs and targeted instructional interventions to improve their mathematical competencies before taking the licensure examination. This result is consistent with Pahmi et al. (2025), who emphasized that inadequate mastery of mathematical concepts and mathematics anxiety can negatively influence students' academic readiness and performance. Similarly, Parmigiani et al. (2025) highlighted that structured preparation programs, formative assessment, and continuous feedback significantly enhance students' learning outcomes and examination readiness.

Table 3. Top Five Learning Competencies with the Highest Student Performance

Mathematics Competency	Correct Answers	Percentage Correct	Interpretation
Least Common Multiples and Greatest Common Factor	236	60.82%	Moderate Readiness
Operations with Whole Numbers, Decimals, Fractions, and Integers	189	48.71%	Low Readiness
Prime Factorization	179	46.13%	Low Readiness
Divisibility Rules	170	43.81%	Low Readiness
Prime, Composite, and Denominate Numbers	170	43.81%	Low Readiness

Table 3 presents the five mathematics competencies in which graduating education students demonstrated the highest level of performance. Among these competencies, least common multiples and greatest common factors recorded the highest percentage of correct responses (60.82%), followed by operations with whole numbers, decimals, fractions, and integers (48.71%), and prime factorization (46.13%). Although these competencies represent the students' strongest areas, all remained below the expected proficiency level of 75%, indicating that their level of mastery was still insufficient for the General Education Mathematics component of the Licensure Examination for Teachers (LET). These findings suggest that students possess a relatively better understanding of basic numerical concepts than more complex mathematical skills. This observation is supported by Awi et al. (2024), who reported that appropriate instructional scaffolding improves students' understanding of fundamental mathematical concepts. Likewise, Montoya et al. (2025) emphasized that effective instructional support contributes to stronger mathematics achievement and readiness.

Table 4. Difficulty Index of General Education Mathematics Competencies (n = 97)

Mathematics Competency	Correct Responses	Incorrect Responses	Difficulty Index (p)	Interpretation
Capacity	90	298	0.232	Very Difficult
Perimeter	132	353	0.272	Very Difficult
Weight	123	265	0.317	Difficult
Volume	129	259	0.333	Difficult
Area	134	254	0.345	Difficult
Ratio and Proportion	178	307	0.367	Difficult
Percentage, Rate, and Base	156	232	0.402	Moderately Difficult
Divisibility Rules	170	218	0.438	Moderately Difficult

Prime, Composite, and Denominate Numbers	170	218	0.438	Moderately Difficult
Prime Factorization	179	209	0.461	Moderately Difficult
Operations with Whole Numbers, Decimals, Fractions, and Integers	189	199	0.487	Moderately Difficult
Least Common Multiples and Greatest Common Factor	236	152	0.608	Moderate Difficulty

Table 4 presents the difficulty index of the general education mathematics competencies included in the comprehensive examination. The results indicate that capacity ($p = 0.232$) and perimeter ($p = 0.272$) were classified as very difficult, while weight, volume, and area were classified as difficult, indicating that students encountered considerable challenges in measurement-related competencies. In contrast, least common multiples and greatest common factors had the highest difficulty index ($p = 0.608$), indicating moderate difficulty and relatively better student performance. These findings imply that students require additional learning experience and review activities focused on practical mathematical applications, particularly measurement concepts. Similar findings were reported by Pahmi et al. (2025), who found that complex mathematical concepts often generate lower achievement when learners have limited conceptual understanding. Furthermore, Zhao et al. (2025) emphasized that well-designed instructional strategies and technology-supported learning environments can enhance students' mathematical understanding and reduce learning difficulties.

Table 5. One-Sample *t*-Test Comparing the Observed Readiness of Graduating Education Students with the Expected Proficiency Level ($n = 97$)

Variable	n	Mean	SD	Expected Mean	Mean Difference	95% Confidence Interval	t	p	Cohen's <i>d</i>	Decision
General Education Mathematics Readiness	97	19.53	8.01	38.00	-18.47	-20.14 to -16.80	-22.71	< .001	2.31	Reject H_0

Table 6 presents the results of the one-sample *t*-test comparing the observed readiness of graduating education students with the expected proficiency level in general education mathematics. The respondents obtained a mean score of 19.53 ($SD = 8.01$), which is substantially lower than the expected proficiency score of 38.00. The computed mean difference of -18.47 indicates that the students scored, on average, nearly 19 points below the required passing level. The 95% confidence interval (-20.14 to -16.80) does not include zero, confirming that the observed difference is statistically significant. Furthermore, the calculated *t*-value of -22.71 ($p < .001$) led to the rejection of the null hypothesis, indicating a significant difference between the students' observed readiness and the expected proficiency level. The computed Cohen's *d* of 2.31 represents a very large effect size, demonstrating that the magnitude of the difference is not only statistically significant but also educationally substantial. These findings suggest that graduating education students have not yet achieved the level of mathematical competence expected for the Licensure Examination for Teachers (LET). Consequently, enhanced competency-based review programs, targeted remediation in weak mathematical areas, and continuous formative assessment are recommended to improve students' readiness before taking the licensure examination. These findings are consistent with Fiscal and Roman (2022), who reported that pre-licensure examination performance is a strong predictor of LET success, emphasizing the importance of strengthening students' competencies prior to the national examination.

CONCLUSION

The findings revealed that graduating education students of HGBaquiran College demonstrated an overall low level of readiness in General Education Mathematics for the Licensure Examination for Teachers (LET). Although students performed relatively better in competencies related to Least Common Multiples and Greatest Common Factor, none of the mathematics competencies reached the expected 75% proficiency level. The overall mean score and passing rate further indicated that only a small proportion of the respondents met the required standard, while the majority failed to demonstrate sufficient mastery of the assessed competencies. The results also identified Capacity, Perimeter, Weight, Volume, and Area as the most difficult learning areas, highlighting the need for strengthened instruction in measurement-related concepts. Moreover, the one-sample *t*-test confirmed a statistically significant difference between the students' observed readiness and the expected proficiency level, indicating that the respondents have not yet attained the mathematical competence required for the LET. Overall, the study concludes that enhanced instructional support, competency-based review, and focused remediation are necessary to improve students' readiness and increase their likelihood of success in the licensure examination.

RECOMMENDATIONS

Based on the findings of this study, it is recommended that HGBaquiran College strengthen its LET preparation program by implementing competency-based review sessions that focus on the weakest mathematics competencies identified in this study, particularly capacity, perimeter, weight, volume, and area. Faculty members are encouraged to employ varied instructional strategies, formative assessments, and problem-solving activities that enhance students' conceptual understanding and mathematical reasoning. The college may also administer regular diagnostic and mock examinations to monitor students' progress and provide timely academic interventions. Furthermore, students should be encouraged to participate actively in structured review programs and independent learning activities to reinforce their mathematical competencies. Finally, future researchers may replicate this study in other teacher education institutions or investigate additional factors, such as mathematics anxiety, study habits, self-efficacy, and instructional practices, which may influence readiness and performance in the Licensure Examination for Teachers.

LIMITATIONS OF THE STUDY

This study was limited to 97 graduating education students of HGBaquiran College during the Academic Year 2024–2025. It focused only on the General Education Mathematics component of the Licensure Examination for Teachers (LET) using a comprehensive examination. The findings are based on data from one institution and may not represent the readiness of graduating education students in other colleges and universities.

FUTURE RESEARCH DIRECTIONS

Future researchers are encouraged to conduct similar studies in other teacher education institutions using a larger sample. Additional studies may also examine factors such as mathematics anxiety, study habits, motivation, and instructional strategies that may influence students' readiness for the Licensure Examination for Teachers. Experimental studies on review programs and mathematics interventions are also recommended for future research.

ETHICS STATEMENT

Permission to conduct the study was obtained from the administration of HGBaquiran College prior to data collection. The participants were informed of the purpose of the study, and informed consent was obtained before participation. Participation was voluntary, and the confidentiality and anonymity of the respondents were maintained throughout the study. The collected data were used solely for

academic and research purposes.

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AI DISCLOSURE STATEMENT

During the preparation of this manuscript, we used Publish or Perish to identify and retrieve relevant scholarly literature, SciSpace to support literature exploration and reference management, and Gemini AI to assist with English grammar, language refinement, sentence structure, and proofreading. After using these tools, we carefully reviewed, verified, and edited all the generated content as necessary. We accept full responsibility for the accuracy, originality, integrity, and final content of this published work.

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