

PREDICTORS OF SUCCESS IN THE LICENSURE EXAMINATION USING DISCRIMINANT ANALYSIS

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ABSTRACT: *This research study investigated the relationship between the academic achievement of Secondary Education students and their success in the Licensure Exam for Teachers (LET). The study utilized a convenient sample of 30 graduates majoring in General Science from academic years 2004 to 2008. Descriptive statistics, including frequency, percentage, and weighted mean, were used alongside inferential statistical methods such as Analysis of Variance (ANOVA), t-test, and discriminant analysis. Results indicated that the academic performance of the graduates, when tested at α 0.05, showed no significant differences, demonstrating that the students had comparable academic achievements. Moreover, the performance of the students in the LET, tested at the same significance level, also showed no significant differences across the cohort. However, further analysis revealed differences in academic performance between LET passers and non-passers. LET passers generally achieved higher undergraduate grades in Biology 102, Botany 101, Chemistry 102, Chemistry 104, Physics 101, Physics 102, as well as higher GPAs in general education and professional education. Conversely, in Chemistry 101 and Zoology 101, non-passers performed slightly better based on statistical data. Additionally, the study identified four key predictors of success in the LET: GPA in professional education, Physics 102, Physics 101, and Chemistry 102, ranked in decreasing importance.*

1. INTRODUCTION

Quality education is recognized as the primary function of instruction, as emphasized by the Educational Testing Service (ETS). Accordingly a high-quality teachers are essential in producing competent students, highlighting the critical importance of quality instruction [1]. In alignment with this principle, R.A. 7836, acknowledges the dynamic role of educators in nation-building and fostering accountable, well-educated citizenry. To uphold these standards, the Professional Regulation Commission (PRC) mandates that no person may practice instruction without a valid professional license and certificate of registration. This ensures that students receive the quality education they deserve. As prescribed by R.A. 7836, the Licensure Examination for Teachers (LET) serves as the national qualifying examination for aspiring professional teachers.

PRC recommends sanctions for institutions with consistently poor board examination performance, including reduced government subsidies and the termination of courses or programs[2]. This concern is reflected in BaSC's LET results: in April 2011, the institutional passing rate was 8.33%, compared to a national average of 26.28%, and in September 2011, the institutional passing rate dropped to 3.30%, against a national average of 31.45% (Registrar's report). These results highlight the urgent need for the College of Education to improve its pass rates.

Various factors, such as academic performance in major subjects, are associated with success in the LET and could serve as a basis for enhancing institutional ratings. These alarming trends motivated the researcher to identify the key predictors of LET success among teacher education graduates using discriminant analysis. This study aims to provide insights into improving the institution's performance and meeting the challenges posed by declining passing rates.

2. RELATED LITERATURE

The Licensure Examination for Teachers (LET) is an essential process in the Philippines for certifying individuals to practice as professional teachers. Teaching education is widely available across the country, with all tertiary institutions offering teacher education programs. The implementation of the Teacher's Professionalization Act of

1994 (R.A. 7836) strengthened the guidelines of instruction as a profession and introduced the licensure examination as a requirement for teachers. The LET is administered by the PRC, and passing it is necessary for individuals seeking to practice as teachers in the country. For the secondary level, the examination consists of three measures: professional education, general instruction, and the major area of concentration. Applicants must achieve at least a 75% rating, with no score lower than 50% in any section.

Various studies have been conducted to identify the factors that predict success in the LET. Academic performance, including GPA and subject-specific grades, has consistently emerged as a significant predictor of success. The relationship between pre-service education and LET performance has also been explored. Studies highlighted the importance of academic performance and pre-service education in determining success on the LET[3, 4]. Similar findings from studies on other licensure examinations, including nursing, further support the role of academic achievements as key predictors. Some studies also indicate that mock exams, academic aptitude, and pre-examination performance can positively influence the outcome of the licensure examinations[5].

Moreover, studies have also demonstrated the significance of academic variables, such as grade point average and standardized exam results, in predicting success in various licensure exams. Research on the National Council Licensure Examination for Registered Nurses and the Praxis II Principals of Learning and Teaching (PLT) exam reveal that academic performance in core courses, subject matter expertise, and standardized test results are key factors for success. Additionally, studies utilizing discriminant analysis, emphasize the utility of statistical models in predicting exam outcomes and identifying significant factors influencing performance[6]. Discriminant function analysis (DFA) has been employed across various fields to classify groups and predict performance based on key variables, such as GPA and subject-specific test scores.

These findings provide valuable insights for educational institutions and examination bodies to focus on strengthening these predictors to improve pass rates in licensure exams.

3. METHODOLOGY

This study was conducted at Basilan State College; The institution is the sole provider of higher education in the area registered with the Commission on Higher Education (CHED) offering teacher education programs.

The research utilized a quantitative descriptive, ex-post facto design. The term "ex post facto," meaning "from after the fact", implies that the dependent variable was already observable, and the study aimed to identify the antecedents responsible for this outcome [7]. The method seeks to determine the cause or reasons behind differences in behaviour or status among groups [7].

The researcher observed distinct group differences on certain variables and sought to identify the key factors contributing to these variations. A total of 30 respondents were selected for the study. These respondents were graduates of the Bachelor of Secondary Education, majoring in Biological Science, from the academic years 2004–2008, who also took the LET. Purposive sampling was employed as the selected graduates represented the specific population of interest. The document analysis technique was used to gather data relevant to the research problem. Document analysis involves reviewing existing documentation to extract pertinent information for the study. The documents examined included the official transcripts of records (TOR) of graduates (2004–2008) from the Registrar's Office, which served as a basis for evaluating academic performance. The TOR provided data on grades in major subjects, general education, and professional education. The LET results from 2004–2008 were obtained from the Professional Regulatory Commission (PRC) to analyze their correlation with academic performance.

Descriptive statistics, such as frequency, percentage, and weighted mean, provided an overview of the data. Moreover, Analysis of Variance (ANOVA), t-tests, and discriminant analysis was used. ANOVA assessed the differences in students' academic performance and LET results. T-tests measured the differences between passers and non-passers, while discriminant analysis identified predictors of LET success. Discriminant function analysis (DA), a multivariate method, was applied to form a predictive to differentiate groups founded on perceived variables.

4. RESULTS AND FINDINGS

The statistical analysis of the tabulated data revealed that the F-value of 1.289 had a significance value of 0.238, which is bigger than the $\alpha = 0.05$. Thus, it was concluded that there is no significant difference in the academic performance, in terms of grade averages, of students who took the LET. This finding indicates that the academic performance of Basilan State College (BaSC) students who took the LET between 2004 and 2008 was consistent, with grade averages closely related across the group.

The findings revealed an F-value of 0.044, with a significance value of 0.957, it is also greater than $\alpha = 0.05$. Based on this, it was concluded that no significant difference in the LET of BaSC students who took the exam from 2004 to 2008. Statistically, the performance of students with respect to the LET results was on the same level, suggesting that the LET scores among the group were closely related.

It showed that, at $\alpha = 0.05$ level of significance, significant differences existed between the academic performance of Bachelor of Secondary Education (BSED) General Science

majors who passed the LET and those who did not. Furthermore, the results also disclosed a canonical correlation of 0.854, which indicates that 72.93% of the variation in the grouping variable (whether a student passes or fails the LET) can be explained by the predictors. Although the correlation is not perfect (with 1.00 being the ideal), it still demonstrates a function that discriminates well.

Table 1. Structure Matrix Results and Summary of Canonical Discriminant

	Structure Matrix	Discriminant Function
	Function 1	Passed LET
GPA Professional Education	.620	-1.107
Physics 102	.499	.153
Physics 101	.433	.045
Chemistry 102	.363	-.191
Biology 102	.287	.791
GPA General Education	.280	2.718
Botany 101	.247	9.121
Chemistry 104	.247	-1.679

The structure matrix analysis identified four significant predictors of success in the LET, listed in order of importance: GPA in professional education, Physics 102, Physics 101, and Chemistry 102. Factors with loadings below 0.30 were deemed insignificant as predictors of LET success. These less influential factors included Biology 102, GPA in general education, Botany 101, and Chemistry 104.

The classification results revealed that 80.0% of cross-validated grouped cases were correctly classified, indicating that the model was effective. The hit ratio, which is above 25%, confirmed the model's acceptability. Notably, non-LET passers were slightly better classified (94.7%) compared to LET passers (90.9%). This demonstrates the discriminant function's reliability in predicting group membership.

5. CONCLUSIONS & RECOMMENDATIONS

The following hypotheses have been made in light of the study's findings:

The BaSC students who took the Licensure Examination for Teachers between 2004 and 2008 performed similarly academically. This suggests that there is a correlation between the student's educational performance levels and grade average means. BaSC students who took the Licensure Examination for Teachers between 2004 and 2008 performed similarly well on the LET. This suggests that there is a close relationship between the students' LET achievement levels. According to the structural matrix, four topics were found to be highly predictive of passing the licensing exam, specifically:

GPA Professional Education, Physics 102, Physics 101 and Chemistry 102 (in decreasing importance).

Furthermore as a result of the study the following are the recommendation: The policy of not allowing students to take the LET if they will not earn an average passing grade established by the college, to assure high percentage of LET passers. Students must be obliged to have an intensive review after graduation.

Establish a policy or standard in giving grades to students for this will strongly reflect in their performance in the LET. Moreover, remedial classes must be made available to students who are not performing well in their respective classes.

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