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Route towards certification: a path analysis on licensure performance of new teacher education curriculum graduates

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ABSTRACT

The board licensure examination for professional teachers (BLEPT) is a critical assessment for aspiring educators in the Philippines. Despite its vital importance, limited research has explored the comprehensive influence of the education graduates' demographic background, psychological state, and achievement in the institutional parameters on the BLEPT performance. This study examined these influences on the licensure performance among 101 bachelor of secondary education (BSEd) mathematics and science graduates under the new teacher education curriculum. The researchers collected data using validated researcher-made questionnaires and educational metrics. Using structural equation modeling (SEM), results showed that the path model highlights the multifaceted nature of BLEPT performance, which shows that an intrinsic commitment towards the teaching profession and a supportive network create a cycle of positive experiences that fuels the graduates' academic performance and self-efficacy, leading to a notable licensure performance. Likewise, the model emphasizes the vital effect of graduates' education-related employment on their licensure examination performance. Taking these factors into account, teacher education institutions (TEIs) and key educational stakeholder should create targeted interventions, investigate unforeseen factors, and restructure curricula implementation to address the shortage of competent Filipino educators in these critical educational disciplines which are mathematics and science education.

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1. INTRODUCTION

The world is increasingly driven by a growing demand for mathematics and science educators tasked with honing innovators and scientists who can solve the challenges of tomorrow. However, there exists a scarcity of well-trained teachers in the science, technology, engineering, and mathematics (STEM) field, generating a severe but not yet irreversible education crisis across borders like deteriorating mathematical-scientific competence and unresolved learning deficiencies. This dilemma enables policymakers to recalibrate the teacher preparation programs that would equip education graduates with sufficient skills and knowledge to effectively produce students with conceptual understanding, disposition, and higher-order thinking skills while learning and thriving independently [1]. As an action plan, international and local initiatives were proposed to address these pressing issues in the educational field. In the global context, the United Nations (UN) formed a framework that provides a holistic and comprehensive approach to strengthening teacher education programs by targeting the current and future educational needs

of developing countries by substantially training teachers to be content specialists, pedagogical experts, and digitally literate individuals [2], [3].

Similarly, in the Philippine context, higher education institutions were presented with a restructured teacher education curriculum by focusing on an outcome-based education framework [4]. It highlights the integration of content and pedagogy, research and inquiry, technology integration, and content area specialization to establish a proactive teaching methodology in the field [5]–[7]. Consequently, the Philippine Regulation Commission adopted an enhanced table of specifications (TOS) for board licensure examination for professional teachers (BLEPT) starting March 2023. Standardization tests like the licensure examination evaluate the alignment of the competencies in the recommended curricula and effective program delivery within the teacher education institutions (TEIs) through assessing if pre-service teachers manifest solid cognitive competencies and substantial pedagogical knowledge of teaching and learning theories, which is crucial in confronting the actual classroom realities [8], [9].

In addition to the alignment of competencies and program delivery, various factors play a significant role in influencing BLEPT outcomes. Among these factors, the psychological state of students is a crucial element for licensure success. Previous studies emphasized that self-efficacy is a key variable shaped by psychological factors such as motivation, interest, and social support [10]. It has been found out that high motivation and a robust interest in a subject paired with social support from peers, family, or mentors strengthens student's academic grit and persistence. These psychological factors collectively influence self-efficacy, which is reflected in tangible outcomes, such as improved exam performance [11], [12]. Moreover, quantitative and qualitative research establishes how crucial social support networks can be in improving college students' academic achievement, highlighting the need for promoting positive socialization experiences to foster success in studies [13], [14]. Subsequently, a cross-sectional and longitudinal study revealed that interest and motivating beliefs are strong determinants of academic achievement, elucidating that these factors are not just philosophical frameworks [15]. In line with these, a study highlighted that strong academic achievement, fostered by high motivation and a supportive environment, enhances a student's readiness and performance on licensure exams significantly. Thus, developing these factors can help create a positive feedback loop, hereby helping graduates achieve professional licenses [16].

Furthermore, institutional parameters also play a vital role in the students' licensure achievement. Studies showed a positive association between overall academic performance during teacher education and licensure exam results, which indicates the constructive alignment of the teacher's assessment within the university to the scope of the licensure examination [17], [18]. Similarly, recent studies propose a moderately positive correlation between licensure exam results and standardized aptitude examination performance. This suggests that applicants with higher entrance exam scores have effective study habits, a stronger base of knowledge, and a critical thinking skill that facilitates them to achieve a better licensure outcome [19], [20].

Lastly, the graduates' demographic background has a significant influence on their achievement. Previous studies [21], [22] provided evidence that higher socioeconomic status and availability of scholarship contribute to achieving greater academic success. Results show that improved performance on major examinations with financial stability may be due to test-taking anxiety management strategies, availability of test preparation materials, and tutoring, among other things. Subsequently, Bacher-Hicks *et al.* [23] pinpoint that experiences gained within educational settings provide hands-on experience relating to the content covered by licensing exams, particularly those concerning student involvement, classroom control methods, and teaching techniques.

While these studies have explored the relationship of individual indicators with BLEPT outcomes, they often fail to account for the collective influence of all possible contributing factors. The novelty of this study lies in its development of a comprehensive model that considers the combined effect of psychological, cognitive, and demographic variables, allowing for a holistic understanding of the factors influencing licensure success among pre-service teachers. This approach addresses the existing gap by providing a clearer understanding of how these factors interact. Key findings on the path model would serve as base data for TEIs in critically understanding the complexities in the route of becoming a licensed professional teacher through crucially identifying probable curricula revisions, targeted interventions, and formulation of teacher excellence programs among pre-service educators with greater confidence and preparation.

The purpose of this study was to evaluate and determine the valuable influence of the factors, namely, demographic profile, psychological state, and institutional parameters on the BLEPT among bachelor of secondary education (BSEd) mathematics and science graduates. The primary goal was to provide a holistic overview of how these factors shape the multifaceted nature of the licensure examination outcomes. By conducting a comprehensive analysis, the study aimed to provide valuable insights on how to effectively contribute to the enhancement of teacher preparation programs and services. This study is specifically aimed to answer the following questions:

i) What is the level of psychological state, achievement in institutional parameters, and BLEPT performance among BSEd mathematics and science graduates?
ii) What best-fit model will illustrate the direct and indirect influence of the exogenous variable namely, graduates' demographic profile, psychological state, and achievement in institutional parameters, on the exogenous variable which is BLEPT performance?

2. METHOD

2.1. Research design

The objective of this research was to assess the effects of graduates' demographic background, psychological state, and achievement within institutional parameters on BLEPT performance. To achieve this objective, the researchers employed a path analysis design through structural equation modeling (SEM). Path analysis, as described by Cho *et al.* [24], examines networks of relationships to measure the influence of independent variables on a dependent variable through direct and indirect paths. Moreover, Weiser [25] explained that SEM goes beyond regression by enabling the simultaneous estimation of multiple variables and latent constructs, with goodness-of-fit tests confirming how well the model aligns with actual data. By utilizing these methods, the researchers could dissect and measure the effects of demographic, psychological, and institutional factors on BLEPT performance, capturing both direct and indirect influences for a comprehensive understanding.

2.2. Participants

The participants were the 101 BSEd mathematics and science graduates in the academic years 2021-2022 and 2022-2023 of West Visayas State University (WVSU)—College of Education; specifically, 46 obtained a BSEd mathematics degree and 55 obtained a BSEd science degree. A purposive sampling approach was used in the selection of the respondents, consistent with the definition of Campbell *et al.* [26], which prioritizes selecting information-rich cases that directly align with the objective of the study. Participants selected for the study met the following inclusion criteria: i) graduates of BSEd mathematics or science programs under the new teacher education curriculum stipulated in CMO 75; ii) candidates who had taken the BLEPT in March 2023, September 2023, or March 2024; and iii) individuals who agreed to allow access to their academic records for the research. In addition, to meet the 10-times requirement common in SEM, the sample size was calculated to ensure it was at least 10 times the number of variables leading to any construct within the model as prescribed by Wagner and Grimm [27].

To uphold ethical standards, a consent form outlining the participant's rights and obligations was provided before data collection. A clear explanation of the study's purpose was presented to gauge their voluntary participation. Confidentiality and anonymity were emphasized, and each respondent's data was protected throughout the research process. Strategies were also implemented to prevent researchers' influence, ensuring participants joined voluntarily and had the right to withdraw at any time.

2.3. Data gathering instrument

2.3.1. Survey questionnaire

The survey questionnaire used in this study was divided into four parts. The first part gathered participants' personal information, including optional name entry, sex assigned at birth, employment status. The second part assessed academic self-efficacy, while the third part evaluated motivation and interest in the teaching profession. The fourth part was adopted from the social support measure to assess social support levels. Three faculty members from West Visayas State University—College of Education reviewed the survey for face and construct validity, and adjustments were made based on their feedback. Reliability testing via Cronbach's alpha yielded coefficients of 0.834 for self-efficacy and 0.849 for motivation and interest, indicating strong reliability.

2.3.2. Institutional data

The study also incorporated data retrieved from institutional records: i) Academic performance: academic performance was based on graduates' general weighted average (GWA) upon program completion. Access was granted through a formal request to the university registrar; ii) WVSU college admission test (WVSUCAT) and standardized admission test (SAT) Scores: WVSUCAT is a test administered by the university, while the SAT is a multiple-choice and essay exam for applicants to the college of education; iii) Scholarship information: details on grants provided to BSEd math and science graduates during their undergraduate years; and iv) BLEPT performance: data on BLEPT results, including overall and subcomponent scores in general education, professional education, and specialization. Data sets such as the WVSUCAT, SAT, scholarship information, and BLEPT Performance among BSEd mathematics and science graduates were obtained from the College of Education Dean's Office through a formal request. Overall,

Table 1 shows the summary of instruments used, the variables with indicators included, the responses/Likert scales utilized, and the level of measurement of each indicator.

Table 1. Summary of instruments used

Instruments	Variables with indicators	Responses/Likert scale	Level of measurement
Survey questionnaire (1 set)	a. Demographic profile		
	i. Name	Optional	Nominal
	ii. Gender assigned at birth	Male/female	Dichotomous-nominal
	iii. Employment status	Employed/unemployed	Dichotomous-nominal
	b. Psychological state		
	i. Academic self-efficacy	3.26–4.00 "very high",	Ratio
	ii. Motivation towards teaching profession	2.51–3.25 "high", 1.76–2.50 "low", and	Ratio
	iii. Social support	1.00–1.75 "very low"	Ratio
Institutional data (1 set)	c. Institutional parameters		
	iv. Academic performance	1.00-1.24 "excellent", 1.25-1.49 "outstanding", 1.50-1.74 "very good", 1.75-1.99 "good," 2.00-2.25 "very satisfactory", 2.26-2.49 "satisfactory", 2.50-2.75 "fair", 2.76-3.00 "passing", 3.01-5.00 "fail."	Ratio
	ii. CAT	90.0- 100.00 "outstanding", 85.00–89.99 "very	Ratio
	iii. Standardized aptitude test	satisfactory", 80.00–84.99 "satisfactory", 75.00-79.99 "fair", and below 75.00 "poor".	Ratio
	iv. BLEPT performance	90.00 - 100.00 "outstanding", 85.00-89.99 "highly proficient", 80.00-84.99 "proficient", 75.00-79.99 "passing", and below 75.00 "fail"	Ratio
	v. Scholarship	With/without scholarship	Dichotomous-nominal

2.4. Procedure and intervention

This study followed a three-phase approach to ensure rigor in data collection and analysis: phase I (preliminary), phase II (data collection), and phase III (data analysis).

- Preliminary: the study's instruments underwent expert validation, with revisions made based on feedback and suggestions from the panel of experts. The validated questionnaire was then transferred to Google Forms to facilitate efficient data retrieval. Then, the digitized survey questionnaire was piloted on 35 non-BSED mathematics and science graduates who took the BLEPT examination within the same time interval as the final respondents. Reliability was confirmed using Cronbach's alpha, with a coefficient threshold of 0.7, indicating the internal consistency of the survey questionnaire.
- Data collection: data were collected through Google Forms, with a consent letter outlining confidentiality measures to reassure participants of their privacy. Institutional data such as WVSUCAT scores, SAT scores, and academic performance were requested via formal letters to ensure proper access to necessary records. Responses and records were organized and encoded in Microsoft Excel to prepare for subsequent analysis.
- Data analysis: descriptive statistical tools such as mean and standard deviation were used to provide a clear overview of the graduates' psychological states, achievement in institutional parameters, and BLEPT performance. Moreover, path analysis via SPSS AMOS was used to establish a model that shows the relationships among these variables, enabling the identification of key predictors that cause direct and indirect influence on the BLEPT performance. The design of the reference model for predicting BLEPT performance involves a theoretical framework that identifies key predictors (e.g., demographic profile, psychological state, and achievement in institutional parameter) as exogenous variables, BLEPT performance as the endogenous variables, and potential mediators (e.g., self-efficacy and academic performance) to capture indirect effects. Using path analysis in SPSS AMOS, the model hypothesizes direct and indirect relationships among these variables, structured hierarchically to reflect logical cause-and-effect pathways. This initial model serves as a reference, tested and refined using goodness-of-fit indices (e.g., Chi-square, root mean square error of approximation (RMSEA), comparative fit index (CFI), goodness of fit index (GFI), Adjusted goodness of fit index (AGFI), normed fit index (NFI), and Tucker-Lewis index (TLI)) to determine the best-fitting model that accurately explains BLEPT performance. This meticulous methodology reflects the study's commitment to maintaining the integrity and reliability of its results. This attention to detail ensures that the conclusions drawn from the data are trustworthy and can be confidently utilized for the improvement of the body of knowledge in the educational sector.

3. RESULTS AND DISCUSSION

3.1. Level of graduates' psychological state, achievement in institutional parameters, and BLEPT performance

Table 2 presents data on the psychological state, institutional parameters, and BLEPT performance of 101 graduates, highlighting key aspects of their academic and psychological readiness. In terms of psychological state, graduates showed high levels of academic self-efficacy (M=3.04, SD=0.44), motivation towards the teaching profession (M=2.89, SD=0.47), and social support (M=3.19, SD=0.35). The low standard deviations across these indicators suggest uniformity in graduates' psychological states, implying that they share similar levels of confidence, motivation, and support. This consistency may reflect effective preparation and a supportive environment that bolsters graduates' confidence and drive toward teaching, which can positively influence their academic and professional performance.

For their psychological state, graduates' academic achievement is classified as outstanding and indicates highly consistent academic performance (M=1.45, SD=0.13). This stability in academic achievement implies strong foundational preparation in core, pedagogical, and specialization courses among graduates. In contrast, the WVSUCAT scores exhibit greater variability (M=82.13, SD=8.49), showing a satisfactory level but a wider spread, possibly indicating differences in academic background. Meanwhile, the standardized aptitude test scores (M=87.93, SD=4.58) are very satisfactory and display moderate consistency, suggesting a generally high aptitude among graduates. These results underscore the role of institutional assessments in capturing diverse academic strengths and areas for targeted support.

Most importantly, graduates attained a high proficiency level across all BLEPT components. The general education rating (M=88.61, SD=2.76) shows tightly clustered scores around the mean, indicating strong, consistent performance in general knowledge. The professional education rating (M=85.78, SD=2.81) and the specialization rating (M=85.26, SD=3.72), however, show slightly lower average scores, with the specialization rating exhibiting greater variability. This suggests that while graduates are generally proficient, there is still room for improvement in the areas of professional education and specialization. Enhancing critical thinking skills in these subjects could help graduates achieve greater consistency and performance, particularly in specialized topics that demand deeper analytical skills.

Additionally, there is a need to strengthen graduates' understanding of pedagogy and learning courses, with a greater emphasis on situational decision-making. This holistic approach will better prepare graduates to navigate complex educational environments and address the challenges they may face in classroom realities. Overall, the BLEPT rating (M=86.14, SD=2.65) reflects a commendable level of proficiency among graduates, demonstrating their readiness to meet the demands of the licensure exam. This strong performance highlights the effectiveness of their academic preparation and psychological resilience, positioning them well for success in their teaching career.

Table 2. Level of psychological state, achievement in institutional parameters, and BLEPT performance

Variables with indicators	N	SD	M	Interpretation
i) Psychological state				
- Academic self-efficacy	101	0.44	3.04	High
- Motivation towards the teaching profession	101	0.47	2.89	High
- Social support	101	0.35	3.19	High
ii) Institutional parameters				
- Academic achievement	101	0.13	1.45	Outstanding
- WVSUCAT	101	8.49	82.13	Satisfactory
- Standardized aptitude test	101	4.58	87.93	Very satisfactory
ii) BLEPT performance				
- Overall rating	101	2.65	86.14	Highly proficient
- General education rating	101	2.76	88.61	Highly proficient
- Professional education rating	101	2.81	85.78	Highly proficient
- Specialization rating	101	3.72	85.26	Highly proficient

Note: The interpretation of the scales was clearly outlined in Table 1

3.2. Path analysis model

Table 3 shows how the revised model fits the data excellently to the various fit indices, such as the absolute, incremental, and parsimonious fit index. To gain a better understanding of how well a model fits the data, Stone [28] recommend using a combination of at least two indices from absolute, incremental, and parsimonious fit indices. The absolute fit indices such as the chi-square, RMSEA, and GFI imply that there is no significant error and provide a good account of model fitness. In the revised model, the chi-square value of (p=0.932) falls within a non-significant range, which is an acceptable level [29]. On the other hand, the RMSEA value of 0.000 remains below 0.08 as recommended by Stone [28], indicating a very good fit in

terms of absolute error between observed data and the proposed model. Also, the increased GFI value (0.995) suggests substantial improvement while explaining the variability in observed data. The values of the incremental fit indices such as AGFI (0.982), CFI (1.000), TLI (1.024), and NFI (0.997) show that there was better fitness. As stated by Sathyanarayana and Mohanasundaram [30], each of these indicators showed significant improvements where their values exceeded the 0.90 benchmark, which further implies substantiality over baseline models when it comes to explaining relationships among variables. Lastly, the parsimonious fit index was used so as not to make things complex unnecessarily while keeping them within limits necessary for understanding relative chi-square. The revised value of the parsimonious fit index (χ^2/df=0.265) is less than five, which is recommended by Falk and Muthukrishna [31]. This shows that the model has achieved goodness-of-fit without unnecessary complexity. Therefore, as Figure 1 shows, the generated path model was aligned on both theoretical knowledge and empirical evidence.

Table 3. Statistical parameters on fitness of the path model

Category	Measure	Acceptable values	Model's fit index
Absolute fit	X^2	>0.05	0.932
	RMSEA	<0.08	0.000
	GFI	>0.90	0.996
Incremental fit	AGFI	>0.90	0.982
	CFI	>0.90	1.000
	TLI	>0.90	1.024
	NFI	>0.90	0.997
Parsimonious fit	X^2/df	<5	0.265

Note: Acceptable values are based on Shipley and Douma [29]

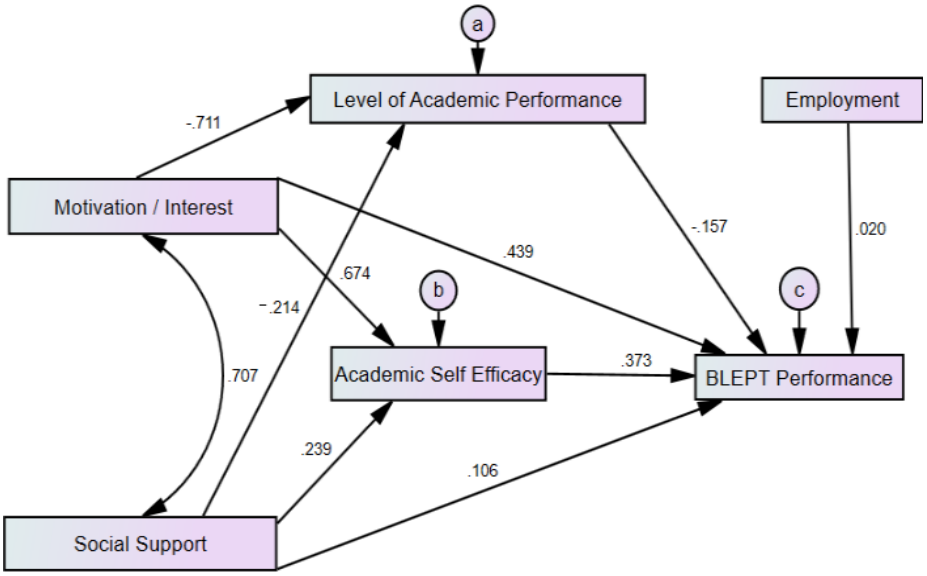

Figure 1. Best-fit path model with significant influences

3.3. Direct and indirect effects of the exogenous variables to the endogenous variable

Table 4 shows the decomposition of the effect of the exogenous variable to the endogenous variable for the revised path model. The exogenous variables were namely, graduates' demographic profile, psychological state, and achievement in institutional parameters and the exogenous variable is their BLEPT performance. The best-fit path model focuses on the significant influences with p-value less than 0.05, indicated along with their standardized beta coefficients, which is a standardized measure of the influence that one variable exerts on another in a path analysis model. The path model illustrates the complex nature of BLEPT performance by identifying the key factors that contribute to significant pathways influencing it. To avoid confusion, in the context of academic performance, a GWA of 1.00 is considered better than a GWA of 5.00. Therefore, a negative beta value between a variable and academic performance indicates a positive influence, as it suggests that increases in the variable are associated with improved outcomes.

Table 4. Decomposition of direct, indirect, and total effect between endogenous and exogenous variable

Exogenous variables	Endogenous Variable	Direct effect	Indirect effect	Total effect	p-value
Social support	Academic self-efficacy	0.239		0.239	0.004
Social support	Academic performance	-0.214		-0.214	0.045
Social support	BLEPT performance	0.106	0.055	0.162	0.000
Motivation/interest	Academic self-efficacy	0.855		0.855	0.000
Motivation/interest	Academic performance	-0.711		-0.711	0.000
Motivation/interest	BLEPT performance	0.439	0.363	0.802	0.000
Academic self-efficacy	BLEPT performance	0.373		0.373	0.000
Academic performance	BLEPT performance	-0.157		-0.157	0.047
Employment status	BLEPT performance	0.020		0.020	0.015

3.3.1. Direct and indirect effects of social support on BLEPT performance

Among these factors, social support emerges as a critical determinant. It highlights the significant role of social support in enhancing academic self-efficacy, academic performance, and BLEPT performance among BSEd mathematics and science graduates. It finds that increased social support leads to higher academic self-efficacy (β=0.239), with graduates feeling more resilient and equipped to handle both triumphs and challenges. A robust support system is also associated with better academic performance (β=-0.214), as it fosters emotional validation, peer-to-peer learning, and collaboration. Furthermore, the study reveals that social support has both direct and indirect effects on BLEPT performance, with a direct, unmediated effect (β=0.106) and a mediated effect (β=0.055). This suggests that social support helps graduates manage stress and anxiety, improving focus and performance. Specifically, self-efficacy and academic performance mediate the influence of social support on BLEPT performance [32]–[34]. In essence, social support acts as a key factor in enhancing graduates' resilience and performance, ultimately improving their readiness for licensure and success in the teaching profession.

3.3.2. Direct and indirect effects of motivation and interest towards the teaching profession on the BLEPT performance

The path model also underscores the critical importance of motivation in influencing academic self-efficacy, performance, and BLEPT results among BSEd mathematics and science graduates. It reveals higher motivation contributes to a strong influence in increasing the graduates' academic self-efficacy (β=0.855), indicating that motivated individuals are more persistent, confident, and resilient in overcoming academic challenges. This greater self-efficacy contributes to better academic performance (β=-0.711), as motivated students are more likely to excel in their coursework. In addition, motivation exerts both direct (β=0.439) and indirect (β=0.363) effects on BLEPT performance, with motivated preservice teachers showing a higher likelihood of achieving better results on the licensure exam. This influence is largely mediated by improved academic performance and self-efficacy. This effect is primarily mediated by enhanced academic performance and self-efficacy. The findings are consistent with existing literature [35]–[37], further supporting the idea that intrinsic motivation drives academic resiliency and better high-stakes exam outcomes. Overall, it suggests that motivation and interest in the teaching profession are key predictors that contribute a significant influence towards BLEPT performance.

3.3.3. Direct effect of employment status on the BLEPT performance

The path model pinpoints that preservice teachers who are employed in educational settings not only gain practical experience but also develop a deeper understanding of teaching methodologies and classroom dynamics, which are central to the scope of the BLEPT examination. Landon-Hays *et al.* [38] further support the idea that such hands-on experience enables preservice teachers to enhance their readiness for real-world teaching challenges. It allows them to refine their skills in classroom management and instructional strategies, directly aligning with the content areas assessed in the licensure examination.

3.3.4. Direct effect of academic self-efficacy on the BLEPT performance

The path model recognized that an enhanced level of self-efficacy significantly contributes to improved BLEPT performance. Specifically, higher self-efficacy provides a direct and positive influence on licensure exam outcomes (β=0.373). The studies of Coohey and Cummings [39] have consistently indicated that individuals with higher self-efficacy are more likely to excel in high-stakes exams, as they exhibit greater confidence, perseverance, and the ability to manage challenges effectively. Therefore, cultivating strong self-efficacy among preservice teachers is essential, as it strengthens their capacity to navigate the pressures of rigorous testing environments and perform at their best.

3.3.5. Direct effect of academic performance on the BLEPT performance

The path model shows that better academic performance (β=-0.157) is associated with higher BLEPT performance. Research consistently shows a positive correlation between college GPA and performance on licensure exams [17], [40]. These results suggest that a solid academic foundation during teacher preparation plays a crucial role in licensure outcomes. This stresses the importance of fostering academic excellence throughout teacher preparation programs [40], [41], as it better equips future educators for success on high-stakes exams like the BLEPT. Enhanced academic support and rigorous coursework may, therefore, be key factors in improving licensure pass rates and overall teacher effectiveness. Overall, the results underline the importance of psychological state, achievement in institutional parameters, and employment status in preparing graduates for the licensure exam, highlighting the need for a balanced approach to teacher education program that fosters motivation, well-being, and academic excellence.

4. CONCLUSION

In a nutshell, BSEd mathematics and science graduates demonstrated high levels of academic self-efficacy, strong motivation, and well-established social support networks during their undergraduate year. This only shows that their teacher education institution provided effective personal interventions by continuously cultivating and fostering psychological stability and inner drive towards the teaching profession. Moreover, outstanding academic achievement and a very satisfactory standardized test rating are reinforced by their prior academic disposition, educational experiences, and effective learning strategies, bolstered by competitive selection processes in higher education institutions. Also, the graduates' highly proficient licensure performance underscores the constructive alignment of curricular content with the teaching and learning process within the teacher education institution. It reflects the institution's commitment to ensuring that educational objectives, instructional methods, and assessment practices are cohesively integrated to support student success.

Furthermore, the path analysis model highlights the crucial role of social support and motivation in enhancing academic self-efficacy and resilience, which are key drivers of academic performance and BLEPT success. Both social support and a strong interest in the teaching profession serve as the cornerstone for improving self-efficacy, strengthening academic performance, and ultimately boosting licensure exam outcomes. The findings also highlight the direct significance of academic self-efficacy and prior academic performance in determining BLEPT success, emphasizing that motivated, confident graduates with strong academic foundations are more likely to excel. Additionally, practical experience through employment in educational settings further refines teaching skills, directly correlating with better BLEPT performance. This demonstrates that the licensure performance of BSEd mathematics and science graduates is shaped by a complex interplay of their demographic profile, psychological state, and achievement in institutional parameters.

Based on these findings, it is recommended TEIs should strengthen teacher preparation by establishing a teacher excellence program. This initiative should include emotional guidance to establish a healthy psychological state and comprehensive in-house review sessions that foster critical thinking and problem-solving, which are essential test-taking skills. Subsequently, the Philippine Regulatory Commission (PRC) must ensure that the content validity and construct alignment of test items effectively assess whether graduates possess the sufficient competence to become effective teachers in the field, thereby fostering a strong teaching force capable of delivering high-quality instruction. Finally, this study lays a foundation for future research by providing a springboard for unforeseen factors such as terminal assessments and pre-board or mock board examinations, enabling continuous improvement in teacher licensure exam performance.

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AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

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C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

DATA AVAILABILITY

The data that support the findings of this study are available from West Visayas State University. Restrictions apply to the availability of these data, which were used under license for this study. Data are available https://drive.google.com/drive/folders/1HUKRbe1AQWUXG5T9lnqSCKLpU9xL1H68 with the permission of West Visayas State University.

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