

CONSTRUCTING SUCCESS: KEY FACTORS OF LET PERFORMANCE AMONG TECHNOLOGY EDUCATION GRADUATES IN A PHILIPPINE STATE UNIVERSITY

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ABSTRACT: *Persistent challenges in the Licensure Examination for Teachers (LET) among technology education graduates highlight the need for targeted academic interventions. This study sought to identify factors linked to LET success at a Philippine State University through a sequential exploratory mixed-methods design. The qualitative phase utilized Focus Group Discussions (FGD), Key Informant Interviews (KII), and the researcher's Personal Experiences (PE), supported by literature reviews and theoretical frameworks, to generate item pools for scale construction. In the quantitative phase, Exploratory Factor Analysis (EFA) was conducted to uncover latent dimensions influencing LET outcomes. Principal component analysis with varimax rotation was applied, and statistical tests confirmed the suitability of the data ($KMO = 0.923$; Bartlett's Test of Sphericity, $p < 0.001$). After refinement, four constructs emerged, explaining 68.012% of the variance: (1) Self-Efficacy During Learning, reflecting confidence in motivation and cognition; (2) Preparedness Before Board Examination, emphasizing structured review and readiness; (3) Quality Scholastic Record, highlighting consistent academic achievement; and (4) Choosing a Leading Institution, underscoring institutional resources and faculty expertise. These validated constructs provide a framework for understanding LET performance and offer strategic insights for curriculum enhancement, institutional support, and future research to strengthen teacher education programs.*

Key Words: *Exploratory Factor Analysis (EFA), Mixed-Methods Research, Technology Education Graduates, Self-Efficacy During Learning, Board Examination Preparedness, Scholastic Achievement, Institutional Support*

1. INTRODUCTION

In technical and vocational education and training (TVET), the quality of trainers is consistently recognized as a cornerstone of overall program effectiveness. Trainers influence not only classroom instruction but also the acquisition of practical skills, workplace readiness, and the long-term economic value of training. The literature underscores a central premise: the success and relevance of TVET programs depend heavily on the competence and capacity of the trainers who deliver them. Since TVET systems are designed to equip learners with employable skills, support career success, and in many cases foster self-employment, the trainer's role is not peripheral but decisive in achieving these outcomes. Consequently, numerous studies highlight trainer quality as a critical determinant of vocational training success and as a major factor shaping the overall quality and responsiveness of TVET provision [1-4].

The literature consistently identifies trainer quality as a direct determinant of learner achievement and program success in TVET. At its core, effective trainers enable trainees to develop cognitive, technical, and practical skills, with multiple studies confirming strong positive associations between trainer competence and skill acquisition [5]. This influence extends beyond subject expertise: teaching methods, enthusiasm, preparation, constructive feedback, and continuous professional development all contribute to improved learning outcomes [6-7]. Trainer quality also plays a pivotal role in ensuring training remains aligned with industry needs. Instructors (trainers) are expected to adapt to workplace changes and translate them into relevant knowledge and practical skills; when trainers lack industry experience, the gap between training and employer expectations widens [8, 9]. Consequently, trainer competence has been linked not only to classroom performance but also to

employability outcomes. Recent studies highlight positive relationships between trainer competence and graduates' employability, encompassing knowledge, assessment, technical, and managerial skills [10]. Moreover, trainer attitudes and practices—such as facilitating learning sessions, integrating electronic media, maintaining training facilities, and supervising work-based learning—have been shown to significantly influence job placement rates [11]. Taken together, these findings suggest that a quality trainer in vocational education is simultaneously a skilled practitioner, effective pedagogue, and reliable assessor. In essence, trainer quality reflects not only what the trainer knows and can do, but also how effectively they enact their role.

In the Philippine context, graduates of technology education programs such as the Bachelor of Technology and Livelihood Education (BTLED) and Bachelor of Technical and Vocational Education (BTVTED) are required to pass the Licensure Examination for Teachers (LET) administered by the Professional Regulation Commission (PRC) before they can be employed as teacher-trainers in the Technical-Vocational-Livelihood (TVL) track of basic education. This requirement reflects the government's assurance that only LET-passers are hired to teach as trainers in DepEd subjects under TESDA-supervised TVET programs, thereby safeguarding the quality and integrity of vocational education. Passing the LET is therefore not only a legal prerequisite but also a critical benchmark of competence for technology education graduates. Despite this regulatory safeguard, persistent challenges remain in the licensure performance of technology education graduates. While the overall LET secondary-level passing rate in March 2026 was 73.10%, reports indicate that practical and vocational majors, such as Technology and Livelihood Education, consistently underperform compared to academic-focused majors. This underperformance raises concerns about the preparedness of

technology education graduates to meet licensure standards and, by extension, their readiness to serve as competent trainers in TVL strands. Previous studies have also highlighted recurring difficulties among technology education graduates in passing the LET, reinforcing the need for closer examination of the curriculum and instructional practices within technology education programs [12]. Given the central role of trainers in ensuring the relevance and effectiveness of TVET, the observed licensure challenges among technology education graduates represent a significant problem. Addressing this issue requires systematic

investigation into the alignment of technology education curricula with licensure requirements, the adequacy of pedagogical preparation, and the broader factors influencing LET performance. Such inquiry is essential to strengthen graduate outcomes, improve program quality, and uphold the government's assurance of competent trainers in the Philippine TVET system.

Despite the growing body of research on LET performance, most studies remain confined to quantitative, record-based designs such as descriptive-correlational methods and

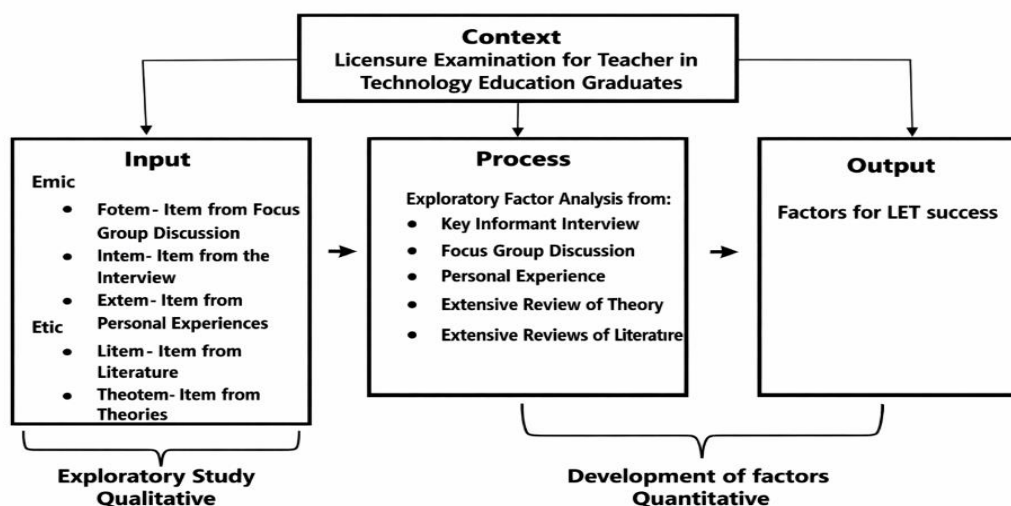


Fig. 1 The Conceptual Framework of the study

documentary analysis, which emphasize pass rates, group comparisons, and statistical associations but often oversimplify complex human experiences and overlook contextual meanings [13-16]. In response, some scholars have employed qualitative approaches—including phenomenology and case studies—to capture the lived experiences, challenges, and coping strategies of examinees [17-20]. While these studies provide depth, they lack generalizability and cannot fully inform broader programmatic reforms. As a result, LET research remains fragmented between outcome-focused quantitative studies and experience-centered qualitative studies, with neither approach alone adequately addressing the complexity of licensure performance. This gap highlights the need for a hybrid methodology that integrates quantitative analysis of performance trends with qualitative exploration of examinees' lived experiences, offering a more comprehensive understanding of LET outcomes.

In Philippine LET research, LET research respondents are typically drawn from teacher education graduates of BEED and BSEd programs, as well as LET takers, passers, and non-passers, depending on the study's focus [21,22] however, these respondent bases have not adequately captured graduates of Bachelor of Technology and Livelihood Education (BTLED) and Bachelor of Technical-Vocational Teacher Education (BTVTEd) programs. This omission is critical because BTLED and BTVTEd graduates consistently record lower LET passing rates compared to other majors, largely due to the breadth of specialization required in their

programs. Unlike BEED or BSEd graduates, these candidates must demonstrate competence across multiple technical-vocational fields, which may dilute focus and preparation for the exam's theoretical demands. Despite this persistent performance gap, there is limited empirical evidence on how BTLED and BTVTEd graduates prepare for, cope with, and ultimately succeed in the LET. Thus, existing LET research remains skewed toward mainstream teacher education programs, leaving a significant population gap in understanding the licensure outcomes of BTLED and BTVTEd graduates. Addressing this gap requires studies that generate empirical evidence on the factors, strategies, and conditions that influence their LET performance, thereby informing curriculum design, review practices, and policy interventions tailored to technical-vocational teacher education.

The primary objective of this study was to identify the underlying latent constructs (Factors) influencing the success of graduate students in the Licensure Examination for Teachers within the technology education program at a HEI, specifically a Philippine State University. This paper aims to identify the latent constructs (or factors) that influence the success of technology education graduates in taking the LET. The study's results could significantly contribute to improving the program and aid curriculum designers in crafting technology education programs that produce a high number of board passers among state universities offering teacher education programs, specifically the trainers in TechVoc program.

The Conceptual Framework of the Study

Figure 1 shows the conceptual framework of the study using the Context-Input-Process-Output (CIPO) model. The study utilizes the Context-Input-Process-Output (CIPO) model to examine educational quality and performance, particularly in the context of the Licensure Examination for Teachers (LET) among Technology Education graduates. The CIPO framework views education as a production process in which inputs, influenced by context, transform into outputs. Inputs include emic perspectives from personal experiences (Extem), since the researcher is also a LET passer, and interviews (Fotem and Intem), as well as etic perspectives from Literature (Litem) and theory (Theotem), which are processed through comprehensive readings. The output focuses on identifying key factors that influence LET success, aiming to enhance program quality and predict future outcomes. An Exploratory Sequential Mixed-Method design was employed to integrate qualitative and quantitative insights for a comprehensive understanding of LET performance.

2. METHODOLOGY

Research Design

The study employed a Sequential Exploratory Mixed-Method Research Design to investigate the LET performance of Technology Education graduates, beginning with qualitative data collection and analysis before transitioning to a quantitative phase, with findings integrated during interpretation. The qualitative phase used a case study approach, drawing from focus group discussions (Fotem), interviews (Intem), personal experiences (Extem), literature (Litem), and theories (Theotem) to generate items. Purposive sampling was applied to select LET passers, and data were gathered through online interviews, observations, and literature searches, with 23 participants contributing. Rigor was ensured through triangulation, respondent feedback, and focus group discussions, while the researcher consciously bracketed personal assumptions to maintain objectivity [23]. Data analysis employed conventional content analysis [24], allowing coding categories to emerge directly from text, and validation was strengthened through semi-structured interviews and feedback loops.

The quantitative phase adopted a descriptive survey design with 240 purposively selected respondents, meeting the minimum requirements for Exploratory Factor Analysis [25]. A 49-item survey instrument was developed from qualitative sources and validated by experts following Hilkin's [26] guidelines, ensuring clarity, content validity, and relevance. Data were collected via Google Forms and distributed through multiple platforms, resulting in 240 valid responses. Analysis employed Exploratory Factor Analysis (EFA) to identify underlying factors influencing LET success, with constructs refined using eigenvalues, scree plots, and loadings above 0.40 [27]. Reliability was confirmed using Cronbach's alpha (≥ 0.70), and responses were scored on a 5-point Likert scale, ranging from "Strongly Agree – Highly Satisfied" (4.21–5.00) to "Strongly Disagree – Not Satisfied" (1.00–1.80). Statistical assumptions were tested using the Kaiser-Meyer-Olkin (KMO) Measure, which

required values above 0.50, and Bartlett's Test of Sphericity, which confirmed sample adequacy [28]. Outliers were controlled by limiting responses to a 1–5 scale, items with communalities below 0.40 were removed, and multicollinearity was addressed through Principal Component Analysis. SPSS syntax was used for coding and analysis, ensuring accuracy, validity, and clarity in the factor structure.

3. RESULTS AND DISCUSSION

Factors That Influence The Technology Education Graduates To Succeed in Taking The LET

An Exploratory Factor Analysis (EFA) using principal component analysis and varimax rotation was conducted, with a minimum factor loading criterion of 0.50 and all communalities exceeding 0.50, indicating acceptable variance explanation. Bartlett's Test of Sphericity yielded a significant result, χ^2 ($n=240$) = 8597.122, $p < 0.001$, and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.922, confirming the data's suitability for factor analysis. The initial factor solution revealed four factors accounting for 70.194% of the total variance, though 13 items failed to load significantly and 12 items loaded onto incorrect factors. After 29 iterations excluding these items, the refined EFA confirmed the theoretical four-dimensional structure, with a KMO of 0.923 and 68.012% of variance explained. Bartlett's test remained significant, all communalities stayed above 0.50, and the final four factors aligned with the study's theoretical framework, as shown in

Table 1- The Four Constructs

Construct 1. Self-Efficacy During Learning

SEDL 1- have a sense of study habit
SEDL 2- manage time wisely in attending the school activities
SEDL 3- have regular attendance in classes at the university
SEDL 4- develop a hardworking attitude towards my academics
SEDL 5- be responsible in performing the learning tasks
SEDL 6- make learning enjoyable to overcome any circumstances
SEDL 7- make use of my talents while studying
SEDL 8- be motivated to study despite the challenges experienced while studying.

Construct 2. Preparedness Before Board Examination

PBBE 1- learn pointers in taking a LET in a review center
PBBE 2- acquire a number of printed review materials
PBBE 3- have a review book material for a self-review
PBBE 4- learn to use the internet for a review activity
PBBE 5- participate actively in a review class
PBBE 6- avoid any distractions when taking the review class
PBBE 7- develop good time management during both work and review hours
PBBE 8- make use of the available time in self-review

Construct 3. Quality Scholastic Record

QSR 1- have good grades during the college days
QSR 2- have a high college Entrance Exam Result in entering the Education Program
QSR 3- have a good scholastic record in high school to enter the education program
QSR 4- have a good grade in practice teaching

Construct 4. Choosing Leading Institution

CLI 1- study in a university that offers the best learning for its students
CLI 2-enroll in a reputable review center
CLI 3- immerse myself in a review conducted by the university

Table 1 presents four key constructs that influence LET success among technology education graduates. First, Self-Efficacy During Learning (SEDL) reflects a learner's

confidence in managing motivation, behavior, and cognition, which enhances academic performance and reduces avoidance tendencies [29]. Second, Preparedness Before the Board Examination—including pre-board reviews and study routines—significantly predicts LET outcomes by boosting confidence and focus [30]. Third, a Quality Scholastic Record (QSR), marked by consistent academic engagement and well-rounded achievements, strongly correlates with LET success [31, 32]. Lastly, Choosing a Leading Institution with strong facilities, expert faculty, and advanced resources contributes to better student motivation and performance [33].

4. CONCLUSION AND RECOMMENDATIONS

This study identified four key constructs that significantly predict LET performance among Technology Education graduates in a Philippine state university. Through exploratory factor analysis, Self-Efficacy During Learning emerged as a foundational predictor, highlighting the importance of personal discipline, motivation, and adaptive learning strategies. Preparedness Before Board Examination emphasized the value of structured review practices, resource utilization, and time management. The construct of Quality Scholastic Record reinforced the role of prior academic achievement in shaping licensure outcomes, while Choosing Leading Institution underscored the influence of institutional support and reputation in exam readiness. Collectively, these constructs offer a multidimensional understanding of success factors that contribute to LET performance in the technology education program.

Based on the findings of this study, several recommendations are proposed to improve LET performance among Technology Education graduates. First, student self-efficacy should be strengthened by integrating study skills training, time management workshops, and motivational support programs throughout the curriculum. Board exam preparedness can be enhanced through strategic partnerships with reputable review centers, providing access to diverse review materials, and utilizing digital platforms for self-paced learning. Academic performance must be continuously monitored and supported from high school through college by ensuring consistent feedback and mentoring to maintain strong scholastic records. Furthermore, institutional excellence should be promoted by investing in faculty development, improving the quality of review programs, and fostering student-centered learning environments. These recommendations can guide educators, administrators, and policymakers in designing targeted interventions that elevate the quality of Technology Education programs and improve licensure outcomes.

Limitations of the study

This study was limited to Technology Education graduates from a single Philippine state university, which may affect the generalizability of the findings to other institutions or academic programs. The use of self-reported data through surveys and interviews may introduce response bias, as participants might overestimate or underestimate their behaviors and experiences. Additionally, while exploratory factor analysis identified key constructs, the study did not

include confirmatory analysis to validate the factor structure across broader populations.

Acknowledgment

The authors are deeply indebted to the participants of this study who voluntarily participated without any hesitation or monetary demand.

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