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Technology And Livelihood Education In Northern Philippines: A Comprehensive Case Study Of Dmmmsu-NLUC

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Abstract

This study examines the correlation between the competencies of Technology and Livelihood Education (TLE) teachers in instruction, research, and extension, and students' academic performance. The primary objective is to identify key predictors of academic success to improve TLE instruction and outcomes. Utilizing a descriptive research design, the study surveyed TLE teachers and TLE students from the province of La Union, Northern Philippines specifically from the DMMMSU-NLUC. Data was collected through questionnaires and documentary analyses, focusing on teacher profiles and competencies in instruction, research, and extension. Statistical tools such as frequency count, weighted mean, Pearson correlation, and regression analysis were employed for data analysis. The findings of this study reveal that TLE teachers display a high level of competence across instruction, research, and extension activities, while students exhibit commendable academic performance, notably in Home Economics. The study identifies that teachers' highest educational attainment significantly impacts their instructional and research competence, with their training closely linked to research proficiency. Additionally, it is evident that teachers' instructional competence serves as a critical predictor of students' academic success. The integration of teachers' educational attainment, training, and instructional proficiency collectively and significantly influences and predicts students' performance in TLE. These findings offer a robust foundation for implementing targeted enhancements in TLE instruction.

Article Info

Keywords:
academic performance, students' performance, predictors, teachers' compence, TLE

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INTRODUCTION

Technology and Livelihood Education or TLE is a type of functional education, that is predominantly manipulative providing learning experiences, in leisure time interests, consumers, knowledge, creative expression, family living, manual skills, technological development, and other similar areas of activities for development.

Technology and Livelihood Education (T.L.E) plays an important part on this new curriculum. Focusing much concern, mentors met big challenges just to comply with the requirements of DepEd. This subject will also help in solving the economic needs of our people, to equip the student with skills just to face the real situation in terms of family lifestyles. Since the subject comprises of four areas; Home Economics, Agriculture, Industrial Arts, and ICT, nothing will be lost in terms of learning. Graduates in Senior High School under Tech-Voc courses would be ready to be employed through the actual application of their training. The T.L.E will serve as their stepping stone in seeking a better life, T.L.E subject serves as the Key to K +12 Curriculum (Carullo, 2014)

The Philippine concept of Technology and Livelihood Education (TLE) is a modification of Practical Arts Education. It comprises of four-unit areas, the studies in Agri-Fishery Arts, Industrial Arts, Information and Communication Technology, and Home Economics. All are directed to develop productive skills to maintain a wholesome livelihood.

In today's knowledge-driven and competitive global economy, Technical/Vocational Education is a fundamental element in the development equation because it allows individuals and societies to unlock their potential, expand their horizons and adapt to the changes in the dynamic world. (SAVAP International, 2013). Tertiary education, which consists of general education courses, subject content, and professional subjects, is intended for specialized study to qualify the individual for personal enrichment while also preparing the students for future careers.

Technology and Livelihood Education are given special emphasis in the country's education program. It is only for reasons of their effective contribution to the fields of knowledge but also as basis in all aspects of development. TLE, therefore, must be taught intelligently and effectively so that learners could appreciate and translate these learning into something beneficial and developmental.

The Bachelor in Secondary Education Major in Technology and Livelihood Education (BSED-TLE) is a four-year degree program in the Philippines that will prepare students to teach TLE Subjects in high school and at the tertiary level. As a TLE major, students will be taking the same professional education courses along with a couple of other subjects such as Basic Drafting, Entrepreneurship, Plumbing, Carpentry and Masonry, Cosmetology, Foods, Basic Electricity, and Basic Electronics. Other schools are offering other specialized subjects like Agriculture and Fishery, Handicrafts, and Industrial Arts which makes the school programs competitive. One of the courses offered by the Don Mariano Marcos Memorial State University North La Union Campus (DMMMSU-NLUC), particularly in the College of Education is BSED-major in TLE.

To sustain the Licensure Examination for Teachers' performance in the TLE program, teachers teaching TLE should conduct further research on how to achieve high performance in instruction to be able to sustain the LET results and enhance the performance of the students that is why teachers play a vital role in teaching-learning process.

LITERATURE REVIEW

Technology and Livelihood Education offers also the part of improving students' socialization through teamwork projects. Every subject is hard to understand particularly those major subjects perhaps, the organized thing to do is to put standardized and ladderized curriculum. Garcia (2006), in his article on first class teachers stressed that is expected from the TLE teachers the burden of the big task of educating students placed on their shoulders. They are mandated to develop their students' potentials to the fullest, for them to live productive lives.

Moreover, EDCOM (ret 2012,) reiterated the challenge to teachers of bringing out the best in their TLE students which is a very urgent call since "the quality of Philippine education is continuously declining." It can be noted that TLE subjects are not yet given so much importance by many. To date only a few students take vocational courses, apparently those who do realize that these will lead them to opportunities for employment even if they

do not get a college education. In the long run, TLE-takers will realize that technical courses are opportunities for them to uplift their economic capabilities and thus improve their family's standard of living.

TLE teachers should themselves also be convinced that TLE subjects are the practical and effective answers to the needs of an impoverished society like ours, and that teaching TLE subjects is essential in equipping our youth with knowledge, skills, and proper attitudes towards work and thus ensure the development and wise utilization of our country's resources. TLE is the answer to improve peoples' quality of life. Because of the fact that teaching TLE subjects or the basic technologies is essential in equipping the youth with knowledge and skills in order to develop positive rational attitudes towards work and insure the development and wise utilization of the country's resources. (http://www.ijesrt.com/issues%20pdf%20file/Archive-2016/July-016/127.pdf)

This study hinges on the theory of evaluation. Burden and Byrd, mentioned by Tamayo (2003), pointed out that frequent, continuous and impartial evaluation of academic performance is vital not only for the growth of the institution but also for the growth of the individual. Performance evaluation would tell where improvement is needed. It will point out strengths and weaknesses and, if acted upon wisely, will improve academic capabilities.

The Theory of Performance (ToP) develops and relates six foundational concepts (italicized) to form a framework that can be used to explain performance as well as performance improvements. To perform is to produce valued results. A performer can be an individual or a group of people engaging in a collaborative effort. Developing performance is a journey, and level of performance describes location in the journey. Current level of performance depends holistically on 6 components: context, level of knowledge, levels of skills, level of identity, personal factors, and fixed factors. Three axioms are proposed for effective performance improvements. These involve a performer's mindset, immersion in an enriching environment, and engagement in reflective practice. (http://www.webpages.uidaho.edu/ele/scholars/Results/Workshops/Facilitators_Institute/Theory%20of%20Performance.pdf)

Performance, as the adage goes, is a "journey not a destination." The location in the journey is labeled as "level of performance." Each level characterizes the effectiveness or quality of a performance. As a lawyer improves her level of performance, she can conduct legal research faster, more thoroughly, and more in-depth. As an academic department improves its level of performance, the members of the department are able to produce more effective student learning, more effective research, and a more effective culture. As a manager advances his level of performances, he is able to organize people and resources more effectively and to get higher quality results in a shorter time. As a teacher advances his levels of performance, he is able to produce deeper levels of learning, improved levels of skill development, and more connection with the discipline for larger classes while spending less time doing this. As an actor improves his level of performance, he is able to learn parts quicker, play more varied roles, and produce a deeper and more meaningful impact on audiences.

METHODOLOGY

This study employed the descriptive research method, which is deemed most appropriate for the investigation as it systematically describes, records, analyzes, and interprets prevailing conditions. Descriptive research facilitates a comprehensive examination of existing phenomena without experimental manipulation, allowing researchers to identify patterns, relationships, and trends among observed variables. Moreover, this approach integrates comparative and contrastive analyses to reveal associations between non-manipulative factors, providing valuable insights into the underlying dynamics of the study context (Rutab, 1996).

1. Objective Definition

This study aims to determine the TLE Instruction in DMMMSU NLUC College of Education.

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Specifically, it seeks answers to the following questions:

1. What is the profile of teachers along:

a. Personal

a.1 Civil Status

a.2 Sex

a.3 Number of Children

b. Professional

b.1 Highest educational attainment

b.2 Length of service
b.3 Trainings attended
b.4 Number of teaching units
b.5 Number of preparations
b.6 Quasi assignments
2. What is the level of competence of TLE teachers along:
a. instruction
b. research, and
c. extension
3. What is the level of students' academic performance in TLE?
4. Is there a significant relationship between
a. profile and competence of TLE teachers
b. competence of teachers and students' performance in TLE
c. profile of TLE teachers and students' performance in TLE
5. What are the predictors of students' performance in TLE?
6. What action plan can be formulated to improve instruction of TLE of DMMMSU- NLUC College of Education?

2. Scenario Development

The respondents of the study were the CE faculty who are teaching TLE and tertiary students who are TLE majors. Researchers made a questionnaire was utilized to gather data on the profile and competence of teachers along with instruction, research and instruction. Questionnaire and documentary analysis was used as data-gathering tools. Frequency count, weighted mean, and Pearson r and regression analysis were be utilized in the treatment of data. Megastat was utilized to analyze and interpret the findings of the study.

3. Setup and Configuration

The population of this study consisted of 39 education students enrolled in TLE Subjects from second year to fourth year for the 1st semester school year 2016-2017 and 9 CE faculty who are teaching TLE subjects. The entire population was taken with a total population of 47.

4. Step-by-Step Execution

This study utilized the IPO Model as reflected in the research paradigm. (refer to Fig. 1) The Input includes the profile of the teacher respondents, their level of performance along instruction, research and extension and students' academic performance. The process included the analysis of variables such as profile of the teacher respondents, their level of performance along instruction, research and extension and students' academic performance. Relationship between the variables will also be analyzed and the predictors of students' academic performance will also be identified. This in turn will serve as a basis in preparing an action plan to improve instruction. The action plan is the output of the study.

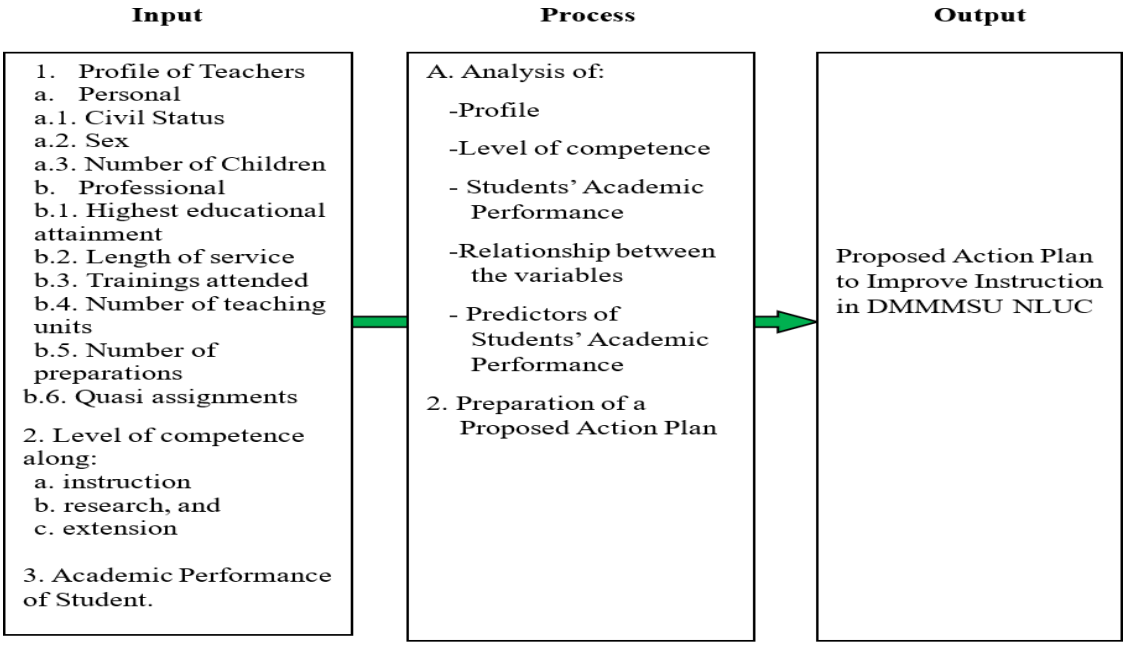

Figure 1. *The Research Paradigm*

5. Data Collection

To obtain the necessary data, documentary analysis and a Questionnaire-checklist was used. The performance of students in TLE was taken from their grades in all major subjects. It was secured from the grading sheets of the teachers in for the first semester of School Year 2016-2017.

The use of the questionnaire-checklist in descriptive survey studies helps ensure the objectivity of responses to the same item from all cases and guides the research in collecting the unique, exceptional or unusual facts particularly interesting to him. In other words, it standardizes and maintains objectivity of observation (Good, 1992).

One set of questionnaires was used as principal instrument in gathering the data and information on the faculty performance. The questionnaire was divided into two (2) parts. Part I elicited data on the profile of the teachers and Teaching Efficiency. Part II elicited the teachers Research Competencies. Another set of the same questionnaire was used by the supervisor to evaluate the faculty.

6. Evaluation and Iteration

Data gathered was processed following statistical tools and techniques. The raw data was tallied and presented in tables in an effort to present the data accurately.

Frequency count and percentages were used to treat the data on profile of the teachers, mean was used to determine the competence of teachers along instruction, research and extension, Pearson r is used to determine the relationship between variables while regression analysis was utilized to determine predictors of students' performance. Megastat was used to facilitate the treatment of data.

7. Conclusion and Next Steps

This study offers valuable insights for stakeholders committed to enhancing Technical Livelihood Education (TLE) instruction through collaboration and informed decision-making. For practitioners in educational management, the findings illuminate key indicators of faculty performance—spanning professional profiles, efficiency ratings, and student academic outcomes—providing essential inputs for developing targeted action plans that address identified needs. For administrators at Don Mariano Marcos Memorial State University (DMMMSU), particularly those overseeing faculty recruitment, development, and performance enhancement, this study offers a nuanced understanding of the attributes that define a capable, competent, and dependable faculty. The proposed action plan, once approved by top management, serves as a strategic framework guiding institutional efforts to strengthen faculty complement and optimize performance. For the faculty of the College of Education, the study provides a deeper understanding of performance benchmarks and professional responsibilities, reinforcing their critical role in advancing DMMMSU's mission and vision. More importantly, faculty cooperation is paramount to ensuring the successful implementation of the action plan and fostering continuous improvement in instructional quality. For students of DMMMSU's College of Education, the study's findings, including the proposed action plan, directly contribute to their educational welfare. A faculty with enhanced professional credentials and improved efficiency translates to higher-quality instruction and better learning outcomes. For researchers, this study offers a comprehensive overview of faculty profiles and efficiency ratings, enabling them to analyze correlations between various performance indicators and academic success. It also provides a basis for identifying instructional gaps and developing evidence-based interventions to further improve educational outcomes within the College of Education. For future researchers, the study serves as a foundational reference for conducting similar or parallel investigations, particularly in crafting action plans aimed at optimizing faculty performance and student achievement.

RESULTS & DISCUSSION

Personal Profile of the TLE Teachers

Sex	Frequency	Percentages
Male	4	44
Female	5	56
Total	**9**	**100**

Table 1 presents the personal profile of TLE teachers along with gender.

Table 1 presents the distribution of TLE teachers by gender, illustrating that 44 percent are male and 56 percent are female. This composition reflects adherence to the Civil Service Commission (CSC) Resolution No. 010114

(MC No. 03, s. 2001), which mandates that government appointments be based on merit and fitness, ensuring equal opportunities for qualified men and women. The balanced representation of male and female faculty members suggests a diverse instructional workforce in the tertiary TLE domain. This diversity may be attributed to varying specializations within the discipline, where expertise in specific areas aligns with individual faculty competencies rather than being determined by gender. Furthermore, the study finds no significant interaction effect between gender and field of study in shaping students' perceptions of TLE instruction. This suggests that the effectiveness of teaching and learning experiences in TLE is not inherently influenced by the gender of the educators but is instead dependent on pedagogical approaches, instructional strategies, and the alignment of faculty expertise with curricular demands.

Civil Status	Frequency	Percentages
Single	1	11.11
Married	8	88.88
Total	**9**	**100**

Table 2. Personal Profile of TLE Teachers Along Civil Status

Table 2 presents the distribution of TLE teachers based on civil status, showing that 88.88 percent of the faculty members are married, while 11.11 percent are single. This demographic trend suggests that a significant proportion of TLE educators have established families, which may contribute to their practical knowledge and expertise in home management—an essential component of TLE instruction. The prevalence of married teachers implies exposure to real-life applications of various TLE-related competencies, particularly in managing household responsibilities, interpersonal relationships, and financial stability. Their lived experiences may enhance their ability to contextualize lessons effectively, providing students with more relatable and applicable insights into the subject matter. Additionally, the data suggests that many of these educators have accumulated significant teaching experience, a claim further substantiated by findings on their length of service. This longevity in the profession underscores their proficiency in delivering TLE instruction, reinforcing the role of experiential learning in shaping effective pedagogical strategies.

Number Of Children	Frequency	Percentages
0	1	11.11
2	3	33.33
3	4	44.44
More than 3	1	11.11
Total	**9**	**100**

Table 3. Personal Profile Along Number of Children

Table 3 presents the distribution of TLE teachers based on the number of children, revealing that among the eight married educators, varying family sizes exist. Specifically, two teachers have two children (33.33%), three have three children (44.44%), one has four children, another has five, and one educator has seven children (11.11%). This demographic trend suggests that married TLE teachers generally prefer having two or more children, reflecting their capacity for family management and stability. Such a pattern may also indicate their inclination toward responsible parenthood, ensuring they provide adequate support and guidance to their children. Moreover, the presence of larger family sizes among some educators implies extensive experience in child-rearing, potentially enhancing their ability to handle diverse student personalities and behavioral dynamics in the classroom. Their firsthand knowledge of child development and household management may further contribute to their effectiveness in teaching subjects within the TLE curriculum, particularly those related to family life, home economics, and social responsibility.

Professional Profile of the TLE Teachers

Highest Educational Attainment	Frequency	Percentages
Doctorate Degree Holder	3	33.33
With Units in the Doctorate Degree	4	44.44
Masters Degree Holder	1	11.11
With Units in the Masters Degree	1	11.11

Bachelors Degree Holder	0	0
Total	**9**	**100**

Table 4. Professional Profile along Highest Educational Attainment

Table 4 presents the highest educational attainment of Technology and Livelihood Education (TLE) instructors, indicating that 33.33 percent hold a doctorate degree, 44.44 percent have completed units toward a doctorate, 11.11 percent hold a master's degree, and another 11.11 percent have earned units toward a master's degree. Notably, none of the respondents hold only a bachelor's degree, demonstrating a strong inclination toward advanced studies among TLE faculty members. The prevalence of graduate education among instructors underscores their commitment to professional development and the pursuit of higher qualifications required for college-level instruction. According to Oredina (2006), the progression of teachers through advanced academic degrees facilitates the refinement of pedagogical skills, enabling them to deliver more effective and specialized instruction. This assertion aligns with the findings of Darling-Hammond et al. (2009), who emphasized that teachers with higher educational attainment tend to exhibit stronger instructional efficacy, deeper content knowledge, and enhanced critical thinking skills. Moreover, the substantial proportion of educators engaged in doctoral studies suggests a continuous effort toward academic excellence and professional mobility, particularly in terms of faculty promotion and institutional ranking. The pursuit of graduate education not only fulfills minimum qualifications for tertiary instruction but also equips educators with the expertise necessary to drive curriculum innovation, contribute to research, and improve student learning outcomes (Gore et al., 2017). Further data indicate that faculty members recognize the importance of sustained learning to maintain relevance in the evolving educational landscape. The desire to complete postgraduate degrees signals their dedication to both personal and professional growth, ensuring alignment with institutional goals and national standards for higher education.

Length of Service	Frequency	Percentages
Above 20	4	44.44
15-19 years	0	0
10-14 years	2	22.22
5-9 years	0	0
Below 5 years	3	33.33
Total	**9**	**100**

Table 5. Professional Profile along Length of Service

Table 5 presents the professional profile along the length of service. The table reveals that 33.33 percent have served the academic community for less than 5 years. This shows that the teachers are still new in the service and are still struggling to establish their name in the field of TLE education.

It can be noted, however, that two have served for 10-14 years and 4 have served over 20 years. This shows that the teachers are already seasoned or experienced in TLE education.

Laroco (2005) inferred that faculty members who have stayed in school for a long time seem to exhibit a declining level of performance on the job and asserted that teachers with a smaller number of years teaching can make up their experiences with their enthusiasm and eagerness to perform well.

Table 6. Professional Profile along Trainings Attended

No. of Trainings	Local		National		International	
	F	%	F	%	F	%
Above 20	6	66.66	0	0	0	0
16-20	3	33.33	0	0	0	0
11-15	0	0	2	22.22	0	0
6-10	0	0	3	33.33	5	55.55
0-5	0	0	4	44.44	4	44.44
Total	**9**	**100%**	**9**	**100%**	**9**	**100%**

Table 6 presents the profile of TLE teachers along with the training attended.

It can be gleaned from the table many of the teachers have attended local training. 3 of them or 66.66 percent have attended more than 20 local training courses. There is training given by the university and the teachers are required to attend. Likewise, local training is more affordable. The teachers would not hesitate to attend local training, especially if they are sponsored by the university. Second, they will not spend much time on travel, hence find them more convenient. This also indicates that there is regular training spearheaded by institutions. It is observed that TLE teachers have more seminars and training needed to enhance their wide-ranging specialization.

On the contrary, it can be noted that the teachers have a limited number of national and international training courses. Only a few of them have adequate experience when it comes to international training.

However, it is good to note that 5 or 55 percent of the TLE teachers have attended more than 5 national training as well as international training courses. These are the seasoned or experienced teachers who have exerted effort to attend these training courses not only for professional growth and promotion but also for accreditation and assessment purposes.

Average Teaching Units	Frequency	Percentages
Above 21	0	0
21	2	22.22
20	0	0
19	0	0
18	2	22.22
15	5	55.55
Total	**9**	**100**

Table 7. Professional Profile along Average Teaching Units

Table 7 elucidates the average number of teaching units of the TLE teachers. The table shows that 2 out of the 9 or 22 percent have above 18 units. This is indicative that they go beyond the prescribed number of units. This means that two of the TLE teachers are handling seven subjects. This is indicative that they are carrying much load. Hence, they have less sufficient time to perform their other functions like their quasi assignments and finish their paperwork like checking of test papers and computing their grades.

On the other hand, there are two who have an 18 units load and five TLE teachers who have 15 units' load. These are the faculty members who have a lesser number of units but handle administrative positions and quasi-assignments. Which means that they are still highly functional in the university.

Number of Preparation	Frequency	Percentages
5	1	11.11
4	2	22.22
3	1	11.11
2	5	55.55
1	0	0
Total	**9**	**100**

Table 8. Professional Profile along Number of Preparation

Table 8 presents the professional profile of teachers along with the number of preparations.

The table shows that 11.11 percent of the TLE teachers have 5 preparations and 22.22 percent of the TLE teachers have 4 preparations. This is indicative that the TLE teachers are handling 4-5 varied subjects to teach. It can be noted as well that five have 2 preparations. This shows that there is a variety in the number of preparations and sometimes this depends on the expertise of the teachers in handling the various subjects.

Number of Units for the Quasi Assignment	Frequency	Percentages
Above 5	8	88.88
5	1	11.11
4	0	0
3	0	0
Below 3	0	0
Total	**9**	**100**

Table 9. Professional Profile along with Number of Quasi Assignment

Table 9 introduces the professional profile of teachers along with the number of units for the quasi-assignment. The table reveals that all the TLE teachers have quasi assignments and most of them have 5 units or more. They are assigned as advisers in organizations such as the TLE Club and others. The other teachers have quasi-assignments in research and extension. This indicates further that teachers are assigned other assignments aside from their regular teaching load. This adds growth to their functions as educators. They are of help to students and their departments in promoting the mission and vision of the university.

Level of Competence of TLE Teachers along Instruction, Research and Extension

INDICATORS	Mean	DR
I. Teacher's Personal Characteristics		
1. Clarity and Modulation of Voice	3.31	HC
2. Maintenance of self-control both in action and words	3.18	C
3. Fluency and explanation of the lesson using the language of instruction	3.59	HC
Sub Mean	**3.36**	**HC**
II. Teaching Efficiency		
1. Methods and Techniques of Teaching		
a. Presentation of the		
b. subject matter is well organized and logical	3.40	HC
c. Explanation of the subject matter is clear and accurate.	3.22	C
d. Utilize varied materials, technology and instructional aids in teaching	3.36	HC
e. Utilize varied teaching techniques, strategies, activities	3.22	C
Sub Mean	**3.30**	**HC**
2. Motivation for Learning and Critical Reflection		
a. Presents the lesson in an interesting and enthusiastic manner	3.27	HC
b. Encourage students' participation	3.5	HC
c. Appreciates desirable behavior	3.45	C
d. Gives activities which stimulates intellectual curiosity and critical thinking	3.5	HC
e. Relates lesson to real life and integrate values	3.86	HC
Sub Mean	**3.51**	**HC**
3. General Atmosphere in class		
a. Manifests pleasant atmosphere conducive for learning	3.6	HC
b. Maintains discipline among students	3.4	HC
c. Implements school policies among students	3.7	HC
d. Teaches without annoying mannerism and/or verbal behavior that distract students from learning	4	

Sub Mean		HC
	3.67	**HC**
4. Substantiality of Teaching		
1. Shows mastery of the subject matter	3.5	HC
2. Incorporates recent developments in the lesson	3.31	HC
3. Presents important aspects of the subject matter	3.54	HC
4. Presents the lesson to gain an in-depth knowledge of the subject matter	3.59	HC
5. Relates lessons to other fields and connects to the profession	3.68	HC
Sub Mean	**3.52**	**HC**
5. Evaluation Skills		
1. Appraisal Question		
a. Asks thought provoking questions	3.55	HC
b. Follow up answers and reactions	3.6	HC
c. Asks questions leading to synthesis or summary of the salient points of the lesson	3.4	HC
d. Prepares well-framed test questions which are valid and reliable	3.85	HC
Sub Mean	**3.6**	**HC**
2. Assigned enrichment activities		
a. Gives assignments to enrich and supplement what is taken in class	3.7	HC
b. Gives course requirements that are practical and challenging	3.3	C
c. Gives adequate time for students to complete assigned course requirements.	3.7	HC
Sub Mean	**3.56**	HC
3. Conduct and return evaluation materials		
a. Vigilant in conducting quizzes' exams to avoid cheating	3.35	HC
b. Efficient in checking test papers, quizzes and other course requirements	3.7	HC
c. Return corrected test papers, quizzes, written requirements within two weeks	3.25	C
d. Inform students specific area of improvement	3.65	HC
Sub Mean	**3.50**	**HC**
GRAND MEAN	**3.51**	**HC**

Table 10. Level of Competence of TLE Teachers along Instruction

Table 10 presents the level of competence of the TLE teachers in instruction. The table elucidates that the. TLE teachers have a high level of competence in instruction with a grand mean of 3.51. This implies that the teachers possess the needed skills and competencies in teaching. This means that they are highly equipped with teaching skills to make instruction highly effective.

For the teacher's characteristics, the TLE teachers are identified to be highly competent. They are identified highest in maintaining discipline and implementing school policies among students. Manifesting a pleasant atmosphere conducive for learning. There is no annoying mannerisms and/or verbal behavior that distract students from learning.

Looking at the table more closely, along with teaching efficiency, they are highly competent in evaluation skills as to appraisal questions with a mean of 3.60. In short, the teachers are highly capable of sustaining students' interest in appraising questions. They are also highly capable of asking thought-provoking questions and follow-up answers and reactions. They ask questions leading to a synthesis or summary of the salient points of the lesson. They also prepare well-framed test questions that are valid and reliable.

This implies that the TLE teachers prepare very good questions both in oral questioning and in written examinations. They follow carefully the principles of test construction. Likewise, they administer exams vigilantly to prevent cheating. Similarly, they are prompt in returning assessment results as well as see to it that they are checked appropriately and accurately. They also give reasonable, practical, and challenging assignments and course requirements. The students are well informed of their performance, and they can utilize monitoring tools and assessment results to improve their performance.

The TLE teachers are also highly competent in methods and techniques of teaching with a mean of 3.30. The teachers present the lesson methodically. They also discuss the lesson in a clear and easy-to-understand manner. Likewise, they are creative in utilizing varied instructional and teaching aids as well as very skillful in utilizing varied teaching techniques, strategies, and activities.

For the general atmosphere in class, they are best, the TLE teachers are highly competent with 3.67 percent. They are highly capable of providing an environment conducive to learning. This also implies that they are excellent classroom managers. They can maintain discipline among students. In addition, they teach without distractive mannerisms or extra movements.

Along with the substantiality of teaching, the TLE teachers are highly competent with a mean of 3.52. They incorporate trends and innovations in the lesson. They emphasize the important aspects of the lesson. There is also the depth of analysis of the subject matter producing critical thinkers. In addition, they are good at integrating. They relate and connect the lesson to other fields and even in the various professions.

Research Competencies	Mean	DR
A. Conceptual Skills: Ability to:		
1. Identify the problem	3.36	HC
2. State the hypothesis	3.36	HC
3. Develop rationale of the Study	3.27	HC
4. Formulate theoretical/conceptual framework	3.72	HC
5. Construct research paradigm	3.54	HC
6. Define key variables operationally	3.81	HC
7. Identify the importance of the research to the institution or community, etc.	4.09	HC
Sub Mean	**3.59**	**HC**
B. Comprehension Skills: Ability to:		
1. Gather materials needed for the topic	3.36	HC
2. Classify and organize the gathered materials into review	3.27	HC
3. Prepare a research design appropriate in the problem	3.45	HC
4. Illustrate sampling design and selection of respondents	3.45	HC
5. Construct appropriate data gathering instruments to answer the problem	3.72	HC
6. Choose a statistical test appropriate for the research design	4.00	HC
Sub Mean	**3.54**	**HC**
C. Analytical skills: Ability to:		
1. Analyze data quantitatively and qualitatively	3.36	HC
2. Interpret the findings	3.18	HC
3. Make implications on the finding	3.45	HC

4. Corroborate findings with findings of the past research	3.45	C
5. Summarize the study.	3.63	HC
6. Draw conclusions from the findings to answer the problem raised	3.81	HC
7. Generate recommendations from conclusions to address problems/weaknesses/ deficiencies identified	3.54	C
Sub Mean	**3.49**	**HC**
D. Technical Skills: Ability to:		
1. Collate data manually	3.09	C
2. Collate data using computer	3.27	HC
3. Present data in appropriate tables	3.36	HC
4. Treat data statistically	3.72	HC
5. Write the research report using accepted format	3.81	HC
Sub Mean	**3.52**	**HC**
GRAND MEAN	**3.54**	**HC**

Table 11. Level of Competence of TLE Teachers along Research

Table 11 reveals the level of competence of TLE teachers in research. It can be noted from the table that the TLE teachers are highly competent in research with a mean of 3.54. This means that they have already embraced research in their culture and vocation. They are more capable of preparing and completing research fulfilling the mandate of the university.

They are most highly competent in conceptual skills with a mean of 3.59. This means that skillful of conceptualizing a research proposal and completing carefully the different parts. They can identify the problem with a corresponding hypothesis, formulate a paradigm, and complete the theoretical and conceptual framework as well as define the terms operationally. Likewise, they can gather data manually and utilize computers to tally and construct the tables. They can also write the research report using the accepted format. Along with comprehension skills, they are best in gathering and organizing related literature and in identifying the most appropriate statistical tools. Along with analytical skills, they are best at summarizing and formulating recommendations.

It can be noted though that they are highly competent in some skills. This implies that they have completely developed their competencies through research and hence some still need research enhancement programs to completely develop all the skills.

Looking at the table indicates that they are highly competent in analytical skills with only competent as their level with a mean of 3.49. This is indicative that they can perform indicated skills. They analyze data quantitatively and qualitatively, interpret findings, make implications, and corroborate findings with past research. Likewise, they can conclude and organize their research report.

This is contrary to the result obtained by Türkmen and Kandemir (2011) as their work attested that teachers lack adequate knowledge of scientific process skills hence students are raised as individuals with low levels of scientific process skills. Echoing results can be traced to the studies conducted by Karslı, Şahin, and Ayas (2009), Hazır and Türkmen (2008).

In addition, a study conducted by Büyüköztürk (1999) revealed that participant teachers lacked adequate level of research competencies and similarly a study by Türkmen and Kandemir (2011) posited that teachers lacked adequate level of theoretical knowledge on scientific process skills.

Extension Competencies	Mean	DR
A. Situation Analysis: Ability to:		
1. Formulate data gathering instrument to identify the existing needs of the community	3.18	C
2. Generate data from the community	3.45	HC

3. Analyze the data	3.36	HC
4. Interpret the data	3.54	HC
Sub Mean	**3.38**	**HC**
B. Planning Skill: Ability to:		
1. Identify individuals who are willing to take part in the extension program	3.36	HC
2. Formulate plan and design programs	3.45	HC
3. Identify and select beneficiaries	3.54	HC
4. Determine source of funds	3.54	HC
5. Schedule appropriate time for the conduct of the extension program	3.81	HC
Sub Mean	**3.54**	**HC**
C. Coordinating Skills: Ability to:		
1. Coordinate plans with the leaders and members of the target community	3.18	C
2. Coordinate plans with the other local government units for implementation	3.36	HC
3. Coordinate and establish local and foreign linkages with government and non-government agencies to help finance the extension programs	3.54	HC
Sub Mean	**3.36**	**HC**
D. Implementing Skills: Ability to:		
1. Spearhead or assist in the execution or delivery of services	3.36	HC
2. Mobilize interested extension program facilitator	3.45	HC
3. Mobilize the members of the community in the delivery of extension program services	3.54	HC
4. Mobilize the members of the community in the sustainability and continuity of the extension services program.	3.54	HC
Sub-Mean	**3.47**	**HC**
E. Monitoring and Evaluation Skills: Ability to:		
1. Device instrument to measure the effectiveness of the program	3.54	HC
2. Conduct periodic evaluation and monitoring of the extension project	3.09	C
3. Analyze the periodic evaluation for timely and adequate adjustments in the extension program	3.63	HC
Sub Mean	**3.44**	**HC**
GRAND MEAN	**3.44**	**HC**

Table 12. Level of Competence of TLE Teachers along Extension

Table 12 presents the level of competence of Technology and Livelihood Education (TLE) teachers in extension activities, revealing an overall Highly Competent (HC) rating with a grand mean of 3.44. This suggests that TLE teachers demonstrate proficiency in executing extension-related tasks, though this competency ranks lower compared to their other professional functions. The findings indicate the need for capacity-building programs to further enhance their extension competencies.

Among the identified competencies, scheduling appropriate time for extension programs received the highest rating (3.81), highlighting teachers' ability to manage time effectively and ensure timely implementation of extension activities. This aligns with research by Torres (2017), which emphasizes the importance of time management in successful extension programs.

Teachers also exhibit strong competencies in situation analysis, planning, coordinating, implementing, and monitoring skills, suggesting their ability to conduct needs assessments, coordinate with stakeholders, mobilize resources, and evaluate program effectiveness. These findings are consistent with Basala (2020), who found

that TLE teachers excel in instructional and extension competencies but require continuous professional development to sustain effectiveness.

Despite their proficiency, there remains room for improvement, particularly in coordinating with local government units and external agencies to secure funding and support for extension initiatives. Studies by Llego (2022) highlight that institutional partnerships and external linkages significantly enhance the sustainability of extension programs.

The results underscore the importance of strengthening extension competencies among TLE teachers. To enhance their effectiveness, educational institutions should develop targeted capacity-building programs that refine extension skills and equip teachers with practical strategies for engaging communities. Establishing partnerships with government and non-government organizations can improve resource mobilization, ensuring adequate support for extension initiatives. Additionally, implementing structured monitoring and evaluation mechanisms will help assess the effectiveness and sustainability of these programs, enabling timely improvements and long-term success. These measures will maximize the impact of extension efforts, ensuring that TLE teachers continue to contribute meaningfully to community development and outreach activities.

Level of Academic Performance in TLE

Table 13. Level of Academic Performance in TLE

TLE Subject	Students' Performance	Descriptive Equivalent
Basic Drafting	84	Good
Foods 1	90	Very Good
Handicraft	86	Good
Family in the Changing Society with Home Management	88	Good
Foods 2	93	Very Good
Agriculture	88	Good
Plumbing	88	Good
Business Math	87	Good
Basic Electricity	88	Good
Cosmetology	91	Very Good
Clothing I and II	86	Good
Computer Applications	86	Good
Basic Electronics	88	Good
Cafeteria Management	90	Very Good
Refrigeration and Air Conditioning	88	Good
Carpentry and Masonry	89	Very Good
Entrepreneurship	87	Good
Mean	**87.93**	**Good**

Legend:
96 – 100 Excellent
89–95 Very Good
82–88 Good
75–81 Fair

The academic performance of students in Technology and Livelihood Education (TLE), as presented in Table 13, indicates an overall Good performance, with a mean score of 87.93. This suggests that students majoring in TLE demonstrate proficiency in their subjects, acquiring both theoretical knowledge and practical competencies essential for their future careers.

Students performed best in Foods 1 and 2, Cosmetology, and Cafeteria Management, achieving grades of 90 and above, which fall under the Very Good category. This suggests a strong aptitude for home economics-related subjects, reinforcing findings by Bernardo and Mendoza (2018) that students tend to excel in skill-based courses that involve hands-on learning and direct application.

Conversely, students exhibited Good performance in Family in the Changing Society, Handicraft, and Entrepreneurship, with scores ranging from 86 to 88. These subjects require conceptual understanding and creativity, which may explain the slightly lower performance compared to skill-intensive courses.

In contrast, students found Industrial Arts subjects—such as Basic Drafting, Plumbing, Business Math, Basic Electricity, Clothing I and II, Basic Electronics, Refrigeration and Air Conditioning—more challenging, with grades ranging from 84 to 88. This aligns with research by Torres et al. (2020), which found that students often struggle with technical subjects due to their complexity and the need for specialized skills.

A study by Amanonce and Maramag (2020) on licensure examination performance among teacher education graduates revealed that TLE graduates often face difficulties in skill-oriented assessments, particularly due to the broad scope of competencies required. This supports the findings of Rudio (2015), which indicated that TLE licensure examinees struggle with the extensive coverage of technical subjects, emphasizing the need for enhanced instructional strategies and curriculum alignment.

The results highlight the varying competencies of students across different TLE subjects. While students excel in home economics-related courses, they face challenges in Industrial Arts subjects, indicating the need for enhanced instructional approaches and additional hands-on training. To address these disparities, educational institutions should strengthen practical training in Industrial Arts to improve student proficiency, ensuring that learners develop technical expertise through experiential learning. Additionally, refining curriculum alignment with licensure examination requirements will better prepare graduates for professional certification and career advancement. Implementing targeted interventions, such as remedial programs and specialized workshops, can further support students in mastering complex skills. These measures will ensure that TLE students develop well-rounded competencies, equipping them with the necessary knowledge and technical capabilities for both academic success and professional readiness.

Relationship Between Variables

Table 14. Relationship Between Profile and Competence of TLE teachers in Instruction, Research and Extension

Variables	Coefficient of correlation(r)	Descriptive Equivalent	Decision	Remarks
Sex and instruction	-0.53	Marked/ Substantial	Accept Ho	Not Significant
Sex and research	-0.13	Negligible	Accept Ho	Not Significant
Sex and extension	-0.63	Marked/ Substantial	Accept Ho	Not Significant
Civil status and instruction	-0.12	Negligible	Accept Ho	Not Significant
Civil status and research	0.07	Negligible	Accept Ho	Not Significant
Civil status and extension	0.30	Low Correlation	Accept Ho	Not Significant
Number of children and instruction	-0.02	Negligible	Accept Ho	Not Significant
Number of children and research	0.24	Low Correlation	Accept Ho	Not Significant
Number of children and extension	0.57	Marked/ Substantial	Accept Ho	Not Significant
Highest educational attainment and instruction	-0.16	Low Correlation	Reject Ho	Significant

Highest educational attainment and research	0.69	Marked/ Substantial	Reject Ho	Significant
Highest educational attainment and extension	0.33	Marked/ Substantial	Accept Ho	Not Significant
Length of service and instruction	-0.09	Negligible	Accept Ho	Not Significant
Length of service and research	0.27	Low Correlation	Accept Ho	Not Significant
Length of service and extension	0.53	Marked/ Substantial	Accept Ho	Not Significant
Training and instruction	0.84	High Correlation	Reject Ho	Significant
Training and research	0.46	Marked/ Substantial	Accept Ho	Not Significant
Training and extension	-0.13	Low Correlation	Accept Ho	Not Significant
Load and instruction	0.14	Low Correlation	Accept Ho	Not Significant
Load and research	-0.28	Low Correlation	Accept Ho	Not Significant
Load and extension	-0.54	Marked Substantial	Accept Ho	Not Significant
Preparation and instruction	0.18	Low Correlation	Accept Ho	Not Significant
Preparation and research	-0.44	Marked/ Substantial	Accept Ho	Not Significant
Preparation and extension	-0.63	Low Correlation	Accept Ho	Not Significant
Quasi assignment and instruction	-0.02	Negligible	Accept Ho	Not Significant
Quasi assignment and research	0.65	Negligible	Accept Ho	Not Significant
Quasi assignment and extension	0.68	Marked/ Substantial	Accept Ho	Not Significant

Table 14 reveals the relationship between profile variables and the competence of TLE teachers along with instruction, research, and extension.The findings indicate that training and highest educational attainment are significantly correlated with teacher competence in instruction and research. This suggests that teachers with higher qualifications and extensive training demonstrate greater instructional effectiveness, reinforcing previous studies that highlight the importance of professional development in enhancing teaching quality (Darling-Hammond et al., 2017). Conversely, sex, civil status, number of children, and length of service exhibit no significant correlation with teacher competence. This aligns with research by Luschei and Carnoy (2010), which found no substantial impact of postgraduate education on student performance in mathematics or language. Similarly, Fernandez (2013) reported that teacher competence is not significantly related to gender but is influenced by teaching experience. The study also corroborates findings by Chetty, Friedman, and Rockoff (2011), who demonstrated that teacher quality significantly impacts students' future earnings and college attendance. Additionally, Clotfelter, Ladd, and Vigdor (2007) found a statistically significant relationship between teaching experience and student performance in Mathematics and English, further emphasizing the role of instructional expertise in academic success. To enhance teaching effectiveness, educational institutions should prioritize faculty development programs that strengthen pedagogical skills,

ensuring educators are equipped with the latest instructional strategies. Additionally, continuous professional training should be encouraged to refine teaching methodologies and adapt to evolving educational demands. Institutions must also refine their hiring criteria by emphasizing academic qualifications and teaching experience to ensure that competent educators lead the learning process. These measures will contribute to the ongoing improvement of TLE education, guaranteeing that teachers possess the necessary expertise to support student success.

Variables	Coefficient of correlation	Descriptive Equivalent	Decision	Remarks
Instruction and Performance	-.59	Marked/ Substantial	Reject Ho	Significant
Research and Performance	0.65	Marked/ Substantial	Accept Ho	Not Significant
Extension and Performance	0.09	Negligible	Accept Ho	Not Significant

Table 15. Relationship Between Teachers' Competence and Students' TLE Performance.

Table 15 presents the relationship between teachers' competence and students' performance in TLE. The results indicate that instructional competence has a substantial correlation with student performance, yielding a coefficient of -0.59. This suggests that the quality of instructional delivery directly affects student outcomes, reinforcing the notion that highly effective teaching strategies contribute to improved academic achievement. Teachers who demonstrate proficiency in instructional methods—such as lesson structuring, student engagement, and content clarity—tend to foster better learning experiences and academic results. Conversely, the analysis reveals that research and extension competence show no statistically significant relationship with student performance. This implies that a teacher's proficiency in conducting research or engaging in extension activities does not necessarily translate into enhanced student learning outcomes. While excellence in research and extension may contribute to academic knowledge dissemination and institutional development, the direct influence on student achievement appears minimal. These findings align with previous research by Schacter and YcowMengThum (2004), who established a connection between instructional competency and student academic performance. Their study identified twelve critical teaching standards—ranging from teacher content knowledge to student engagement strategies—that significantly impact student success. Similarly, local studies by Cancungco et al. (2005) and Arceo et al. (2004) reinforce the importance of effective instructional delivery in shaping educational outcomes. Given the substantial correlation between instructional competence and student performance, institutions must prioritize teacher training and pedagogical skill development to enhance the quality of teaching. Strengthening faculty development programs, refining instructional strategies, and implementing evidence-based teaching practices can contribute to improving student learning outcomes in TLE. Furthermore, while research and extension remain vital components of academic institutions, their direct influence on student performance may require further investigation to determine how these competencies can be integrated more effectively into the teaching-learning process.

Variables	Coefficient of correlation	Descriptive Equivalent	Decision	Remarks
Sex and performance	0.44	Marked/ Substantial	Accept Ho	Not Significant
Civil status and performance	-0.10	Negligible	Accept Ho	Not Significant
Number of children and performance	-0.17	Low Correlation	Accept Ho	Not Significant

Highest educational attainment and performance	0.67	Marked/ Substantial	Reject Ho	Significant
Length of service and performance	0.23	Low Correlation	Accept Ho	Not Significant
Training and performance	0.67	Marked/ Substantial	Reject Ho	Significant
Load and performance	-0.37	Marked/ Substantial	Accept Ho	Not Significant
Preparation and performance	-0.55	Marked/ Substantial	Accept Ho	Not Significant
Quasi assignment and performance	0.41	Marked/ Substantial	Accept Ho	Not Significant

Table 16. Relationship between TLE Teachers' Profile and Students' Performance

Table 16 presents the relationship between profile variables and the performance of students. The findings indicate that the highest educational attainment and training are significantly correlated with student performance, suggesting that teachers with higher qualifications and more training contribute positively to student outcomes. This aligns with research by Boyd et al. (2008), which found that teacher preparation and professional development significantly impact student achievement. Similarly, Burroughs et al. (2019) emphasized that teacher effectiveness, including professional knowledge and experience, plays a crucial role in student success. Conversely, load and preparation exhibit a negative correlation with student performance, implying that excessive workload and inadequate preparation hinder effective teaching. Studies have shown that teacher workload negatively affects instructional quality and student engagement (Agbonrofo, Irowa, & Udoh, 2019). Gwambombo (2013) further supports this, stating that excessive workload reduces teacher effectiveness and student learning. Other variables, such as sex, civil status, number of children, length of service, and quasi-assignment, show no significant correlation with student performance. This suggests that personal demographics do not necessarily influence teaching effectiveness, a finding consistent with prior studies on teacher characteristics and student outcomes (Bonney et al., 2015). The study underscores the importance of teacher qualifications and training in enhancing student performance. Reducing workload and ensuring adequate preparation time can further improve teaching effectiveness. These findings support policy recommendations advocating continuous professional development and workload management to optimize student learning outcomes.

Predictors of Performance in TLE

Table 17. Predictors of Performance in TLE

Variables	P value	Remarks
Sex	0.23	Not Significant
Civil Status	0.77	Not Significant
Number of Children	0.40	Not Significant
Highest Educational Attainment	0.01	Significant
Length of Service	0.86	Not Significant
Trainings	0.04	Significant
Teaching Units Load	0.66	Not Significant
Number of Preparations	0.09	Not Significant
Number of Units of Quasi Assignment	0.44	Not Significant
Competence in Instruction	0.03	Significant
Competence in Research	0.07	Not Significant
Competence in Extension	0.70	Not Significant

The analysis identifies highest educational attainment (p = 0.01), training (p = 0.04), and competence in instruction (p = 0.03) as significant predictors of student performance in TLE. This highlights the crucial role of teacher qualifications and professional development in fostering student achievement. Research supports the findings on highest educational attainment, as numerous studies confirm that teachers with advanced degrees and specialized training are more effective in enhancing student learning outcomes (Darling-Hammond et al., 2017). Likewise, training significantly contributes to instructional effectiveness, as well-prepared teachers are more likely to apply innovative pedagogical methods that engage students (Guskey, 2002; Timperley, 2011). Furthermore, competence in instruction is a key determinant of student success, with well-developed teaching strategies shown to improve student engagement and comprehension (Stronge, 2018). Conversely, factors such as sex, civil status, number of children, length of service, and quasi-academic assignments were found to be statistically insignificant predictors. This aligns with previous research suggesting that demographic variables do not directly influence student performance (Rice, 2010). Studies indicate that teacher effectiveness is more reliant on instructional strategies and subject-matter expertise than on personal characteristics (Chetty, Friedman, & Rockoff, 2014). Interestingly, teaching unit load and preparation were not statistically significant, yet prior research suggests that excessive workload may negatively impact on instructional quality (Toropova, Myrberg, & Johansson, 2021). Studies recommend structured workload policies to balance teaching responsibilities and preparation time (Hattie, 2009). Additionally, the study reaffirms that teachers with National Certifications (NC I, NC II, TM1) contribute to students' acquisition of technical skills. Their active involvement in specialized training enhances their ability to integrate industry-relevant competencies into the curriculum, reinforcing evidence that teacher professional development directly impacts vocational education effectiveness (Schmidt et al., 2017). The findings underscore the importance of teacher qualifications, professional training, and instructional competence in driving student performance in TLE. To enhance educational outcomes, institutions should prioritize faculty recruitment that emphasizes strong academic credentials and extensive training, invest in professional development programs to equip educators with innovative pedagogical strategies, and implement curriculum improvements alongside laboratory upgrades to align with industry standards. These measures will contribute to the ongoing improvement of TLE education, ensuring that students are adequately prepared for both academic success and technical competency.

CONCLUSION

Based on the findings of the study, several key conclusions were drawn regarding the profile, competencies, and impact of Technology and Livelihood Education (TLE) teachers on student performance. The TLE faculty comprises both male and female educators, with the majority being married and having children. Their specializations align with their teaching assignments, and they possess substantial training at both local and national levels. Most are experienced professionals, holding master's and doctorate degrees, managing regular teaching loads, preparing instructional materials, and fulfilling administrative and quasi-academic responsibilities. Furthermore, TLE teachers exhibit strong pedagogical skills, demonstrating proficiency in effective instruction, research, and extension work. Their competence directly influences student learning outcomes, particularly in Home Economics, where students have successfully acquired essential skills and competencies. Additionally, the study highlights the significant impact of the highest educational attainment of TLE teachers on instructional competence and research engagement, while training similarly contributes to their instructional efficacy. Moreover, teacher competence, educational attainment, and training collectively serve as key factors in shaping student performance in TLE. Ultimately, these attributes enable the prediction of student achievement in TLE, reinforcing the importance of continuous professional development for educators in this discipline.

RECOMMENDATIONS

Based on the conclusions of the study, several recommendations are proposed to enhance the quality of Technology and Livelihood Education (TLE) instruction and improve student performance. In the hiring process for TLE faculty, it is essential to consider variables significantly correlated with student achievement, such as highest educational attainment, instructional competence, and relevant training. Strengthening professional development through capacity-building initiatives and training programs in instruction, research,

and extension will further refine educators' skills and competencies. To sustain the commendable academic performance in TLE, it is advisable to integrate engaging and intellectually stimulating classroom activities and co-curricular events, such as skills competitions, fostering both practical expertise and motivation among students. The implementation of a well-structured action plan aimed at advancing TLE instruction is also imperative. Moreover, conducting future research on instructional methodologies across various subjects will contribute to broader academic improvements. To promote authentic learning experiences, upgrading TLE laboratories with modern and sufficient equipment, alongside the provision of conducive learning environments, is crucial. Lastly, fostering skills development through the inclusion of competency-based seminars and assessments offered by TESDA will further enhance student preparedness for real-world applications in their respective fields

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