

Practical Work Approach in Teaching Technology and Livelihood Education

Ermajen V. Zayas¹, Roie M. Ubayubay, PhD²

¹Teacher, Department of Education

²Public Schools District Supervisor, Department of Education

Abstract

Practical Work Approach (PWA) is a crucial hands-on experience for fostering essential knowledge, skills, and attitudes in vocational and technological fields. The study was conducted to determine the effects of Practical Work Approach in teaching TLE at Jasaan National High School, Division of Misamis Oriental, during the School Year 2024 – 2025. It aimed to find out how effective is the practical work approach on learners' academic performance and their attitude in TLE pretest and posttest of control and experimental group; examine the learners' attitude toward TLE; test the significant difference in the learners' academic performance on Technology and Livelihood Education pretest and posttest of the control and experimental group; determine the significant effect of Practical Work Approach on learners' academic performance in Technology and Livelihood Education; and discuss the implications of the findings in teaching Technology and Livelihood Education. The respondents were the 100 Grade 7 learners using a purposive sampling technique and a quasi-experimental research design. The instrument used in gathering the data was a researcher-made instrument employing statistical tools, such as mean, standard deviation, t-test, and f-test as well as regression analysis in analyzing the data.

The findings revealed that there was a significant effect of PWA on learners' academic performance, and their attitude in TLE was positive. Moreover, there was no significant difference in the respondents' pretest results except in the posttest results of the experimental group. Hence, the learners' academic performance in the posttest were good. The study concludes that PWA enhances the learners' performance in attaining the objectives of the specialization Electrical Installation and Maintenance, and Food Fish Processing using hands-on activities. Therefore, it is recommended that teachers should utilize PWA in helping learners who need help in terms of understanding and participating in class discussions.

Keywords: Practical Work Approach, Teaching Technology and Livelihood Education

1. Introduction

Technology and Livelihood Education (TLE) is a vital component of secondary education that equips learners with practical knowledge, technical skills, and entrepreneurial competencies necessary for employment, self-reliance, and economic productivity. Through vocational and livelihood training, students develop abilities that enable them to contribute meaningfully to their families, communities, and the nation. One effective strategy in TLE instruction is the Practical Work Approach, which emphasizes hands-on learning experiences that actively engage students in applying concepts and developing technical skills in areas such as Electrical Installation and Maintenance, Food (Fish) Processing, Cookery, and

Beauty Care at Jasaan National High School, Grade 7 students are introduced to these specializations; however, many encounter difficulties in understanding technical terminology, identifying tools and materials, and performing measurement-related tasks requiring basic mathematical operations. Such challenges often result in low academic performance and negative attitudes toward the subject, highlighting the need for innovative and effective teaching strategies. Considering the importance of developing strong foundational competencies in the early stages of TLE, this study was conducted to determine the effects of the Practical Work Approach on students' learning outcomes in Technology and Livelihood Education.

Research Questions

This study aimed to determine the effects of the Practical Work Approach in teaching Technology and Livelihood Education at Jasaan National High School, Division of Misamis Oriental, during the School Year 2024-2025.

Specifically, it sought to answer the following questions:

1. How effective is the practical work approach in terms of learners' academic performance in the Technology and Livelihood Education pretest and posttest?
2. What is the respondent's attitude towards Technology and Livelihood Education?
3. Is there a significant difference in the learners' academic performance in Technology and Livelihood Education pretest of the control and experimental groups?
4. Is there a significant difference in the learners' academic performance in Technology and Livelihood Education between the post-test scores of the control and experimental groups?
5. Is there a significant effect of the Practical Work Approach on learners' academic performance in Technology and Livelihood Education?
6. What are the implications of the findings in teaching Technology and Livelihood Education to Grade 7 learners?

Significance

This study is expected to benefit curriculum leaders, school administrators, teachers, students, parents, and future researchers by providing valuable information on the effectiveness of the Practical Work Approach in Technology and Livelihood Education (TLE). The findings may assist curriculum leaders and school administrators in evaluating, improving, and enhancing existing educational programs to better address learners' needs and support institutional development. For teachers, the study may serve as a basis for developing innovative instructional strategies and improving the delivery of TLE lessons in alignment with the K-12 curriculum. Students may benefit through enhanced learning experiences and a deeper understanding of the practical applications of TLE in everyday life. Likewise, parents may gain insights into the importance of providing academic, emotional, financial, and moral support to their children's education. Finally, the study may serve as a useful reference for future researchers interested in examining the relationship between TLE instruction and student performance.

Scope and Limitations

This study examined the effectiveness of the Practical Work Approach (PWA) in teaching Technology and Livelihood Education (TLE) among Grade 7 learners at Jasaan National High School during the School Year 2024-2025. The study involved 100 learners, equally divided into experimental and control

groups. It focused on determining the effects of PWA on learners' academic achievement and attitudes toward TLE. Data were gathered through assessment tools and learner-response instruments. The findings were limited to the selected participants and setting; therefore, generalization to other grade levels, schools, or contexts should be made with caution.

2. Literature Review

Practical Work Approach

Functional Work Strategy bridges the gap between classroom-based theories and real-life application by providing learners with hands-on experiences in Technology and Livelihood Education (TLE). Through practical activities, students develop essential skills, knowledge, and attitudes in areas such as agriculture, technology, and home economics while becoming active and responsible participants in their own learning. Unlike traditional teacher-centered approaches, this strategy promotes learner autonomy, discovery, and project-based learning, enabling students to apply concepts in authentic contexts (Toyogon & Dioso, 2025). Practical work also enhances students' understanding of theoretical concepts, improves academic performance, and accommodates diverse learning styles through active engagement with tools and materials (Shana & Abulibdeh, 2020; Ciudad & Aliazas, 2022; Asiri & Nadia, 2020). Furthermore, hands-on learning allows learners to observe, manipulate, and evaluate outcomes, making instruction more meaningful and effective in developing competencies needed for vocational and technical education (Kibirige & Maponya, 2021; Tan, 2021).

Attitude and Academic Performance in Technology and Livelihood Education

Technology and Livelihood Education (TLE) equips learners with essential knowledge, skills, and culture-based competencies for employment, entrepreneurship, and survival in a fast-changing world, as mandated by Republic Act 10647 and operationalized through the Grades 7-12 TechVoc curriculum (Agluba, 2021; Persson, 2020). While TLE fosters economic productivity, business skills, and real-life problem solving through hands-on activities and exposure to tools, equipment, and business planning (Barcelona, 2023; Lovat, 2020), its complexity requires beyond modular reading, necessitating standardized, conducive learning environments, adequate materials, and innovative, digitally literate instruction (Anderson et al., 2019; Javier, 2021). Students' attitudes toward TLE, shaped by interests, career goals, and teaching methods, significantly influence their participation, product quality, and performance (Malala, 2021; Holmes et al., 2020), and positive attitudes are crucial for maximizing learning potential and life skills despite health-related vulnerabilities in tool preparation. Furthermore, academic performance, assessed through marks and continuous feedback, remains a key curricular goal for producing globally competitive graduates (Kumar, 2021; Villalobos, 2020), yet it alone is insufficient without real-world application (Sterling & Onyefulu, 2023), with evidence linking competencies to global market competitiveness (Sepulveda, 2022) and government-supported teacher workshops to effective self-directed learning (Aliazas, 2022).

3. Methodology

Research Design

This study utilized a quasi-experimental pretest-posttest research design to determine the effectiveness of the Practical Work Approach (PWA) in teaching Technology and Livelihood Education (TLE) at Jasaan National High School. A total of 100 Grade 7 learners from two intact classes participated, with 50 learners

assigned to the experimental group and 50 to the control group. The experimental group received instruction through practical work activities, including extension wire fabrication and fish processing, while the control group was taught using conventional methods. Both groups were exposed to the same lessons and were administered identical pretests, posttests, and attitude questionnaires before and after the intervention. Data were gathered through researcher-made TLE achievement tests in Electrical Installation and Maintenance (EIM) and Food (Fish Processing) and were analyzed to assess the effects of PWA on learners' academic performance and attitudes toward TLE.

Participants

The participants of this study were 100 Grade 7 learners from two sections of Jasaan National High School (JNHS) during the School Year 2024–2025. The learners were divided equally into two groups: 50 learners in the control group (Section A-1) and 50 learners in the experimental group (Section B-1). The control group received conventional instruction, while the experimental group was exposed to the Practical Work Approach (PWA) in Technology and Livelihood Education (TLE). These participants were selected to determine the effectiveness of the intervention on learners' academic achievement and attitudes toward TLE.

Data Collection

After securing the necessary approvals from the Schools Division Superintendent and school authorities, the researcher selected two Grade 7 intact classes at Jasaan National High School as study participants. Both the experimental and control groups were administered a pretest and attitude questionnaire before the intervention. The experimental group received instruction through the Practical Work Approach (PWA), which incorporated demonstrations, hands-on activities, drills, role-playing, and project-based tasks related to Electrical Installation and Maintenance (EIM) and Fish Processing, while the control group received conventional instruction covering the same competencies and learning content. The intervention was implemented during regular TLE classes throughout the first and second quarters following the MELCs. Upon completion of the intervention, both groups were given the same posttest and attitude questionnaire to measure changes in academic achievement and attitudes toward TLE. All instruments were personally administered and retrieved by the researcher, and the collected data were organized, tabulated, and analyzed. The study followed the sequence of pretest, orientation, introduction of topics, implementation of PWA-based supplemental learning activities, post test, and post-evaluation.

Data Analysis

The collected data were analyzed using appropriate descriptive and inferential statistical techniques. Frequency counts, means, and standard deviations were used to describe learners' academic performance in the pretest and posttest and to assess their attitudes toward Technology and Livelihood Education (TLE). Independent and paired sample t-tests, along with the F-test, were employed to determine significant differences in academic performance between and within the control and experimental groups before and after the intervention. Furthermore, regression analysis was conducted to examine the significant effect of the Practical Work Approach (PWA) on learners' academic performance in TLE. The results of these analyses served as the basis for interpreting the effectiveness of the intervention and addressing the study's research questions.

4. Results and Discussions

Problem 1. How effective is the practical work approach in terms of learners' academic performance in the Technology and Livelihood pretest and posttest?

Table 1
Summary of the Effects of Practical Work Approach in terms of Learners Academic Performance in TLE-EIM Pretest and Posttest

Variable	Pretest		Post-test			
	Mean	Std. Deviation	Interpretation	Mean	Std. Deviation	Interpretation
Control Group	77	1.74	Fair	77	1.74	Fair
Experimental Group	78.91	1.72	Fair	83	1.61	Good
Overall	78	1.73	Fair	80	1.68	Good

Table 1 shows that the experimental group demonstrated a notable improvement in academic performance in Food Fish Processing (FFP), with mean scores increasing from 78.91 (SD = 1.72) in the pre-test to 83.00 (SD = 1.61) in the post-test, whereas the control group maintained a stable mean score of 77.00 (SD = 1.74) across both assessments. Students in the experimental group reported that hands-on activities enhanced their understanding, engagement, and retention of learning, emphasizing that practical application helped them connect theoretical concepts with actual skills development. In contrast, students in the control group noted the absence of observable changes in their performance, underscoring the role of the control condition as a reference point for evaluating instructional effectiveness. The findings suggest that the Practical Work Approach (PWA) facilitated greater mastery of FFP concepts and skills through active participation and experiential learning. These results are consistent with studies highlighting the value of practical and learner-centered approaches in improving students' academic achievement, engagement, and skill acquisition in technical and vocational education (Li, 2021; UNESCO, 2021).

Problem 2. What is the respondent's attitude towards Technology and Livelihood Education?

Table 2
Summary of the Respondents' Attitude Towards Technology and Livelihood Education

Variable	Mean	SD	Interpretation
Control Group	3.10	0.74	Positive
Experimental Group	3.11	0.74	Positive
Overall	3.11	0.74	Positive

Table 9 shows that the respondents exhibited a positive attitude toward Technology and Livelihood Education (TLE), with an overall mean score of 3.11 (SD = 0.74), interpreted as Agree. The control and experimental groups obtained nearly identical mean scores of 3.10 and 3.11, respectively, indicating comparable attitudes toward the subject. The findings suggest that learners in both groups recognized the value of TLE in developing practical knowledge and life skills. The similarity in mean scores may be attributed to the consistent delivery of instruction and the engaging learning experiences provided across both

groups. These results are consistent with previous studies showing that positive perceptions of vocational subjects promote learner engagement and participation in the educational process (Villalobos et al., 2023; Senden et al., 2023). Additionally, the favorable ratings reflect learners' appreciation of TLE as a relevant and meaningful subject that contributes to their personal and academic development (Casiño & Tantiado, 2024).

Problem 3. Is there a significant difference in learners' academic performance in Technology and Livelihood Education on the pretest results for the control and experimental groups?

Table 3
Comparison of the Learners' Academic Performance in the Technology and Livelihood Education (TLE) – Pretest

Group	Academic Performance in TLE	SD	t-Test value	p-value	Interpretation
Control	76.5	5.31	21.673	0.139	Not Significant
Experimental	78	10.89	38.560	0.331	Not Significant

Table 3 shows that the control group ($M = 76.50$, $SD = 5.31$) and the experimental group ($M = 78.00$, $SD = 10.89$) did not significantly differ in their pretest performance in Technology and Livelihood Education (TLE), as reflected by p-values of 0.139 and 0.331, which exceeded the 0.05 level of significance. The findings indicate that both groups were comparable prior to the intervention, providing a reliable baseline for evaluating the effectiveness of the Practical Work Approach (PWA). The higher variability observed in the experimental group suggests differences in learners' prior knowledge and experiences, while student responses revealed challenges related to lesson comprehension and content mastery. Pretests serve not only as measures of prior knowledge but also as tools for identifying learning gaps and informing instructional strategies that enhance engagement and achievement (Sana et al., 2020). Academic performance is influenced by prior knowledge, learning approaches, and teaching practices (Kumar, 2021), while practical learning experiences have been shown to enhance students' understanding, participation, and skill development in technical and vocational education contexts (Kibirige & Maponya, 2021).

Problem 4: Is there a significant difference in the learners' academic performance in Technology and Livelihood Education between the post-test scores of the control and experimental groups?

Table 4
Comparison of the Learners' Academic Performance in the Technology and Livelihood Education (TLE) – Post-test

Group	Academic Performance in TLE	SD	T-test value	p-value	Interpretation
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Control	77.5	6.982	50.227	0.069	Not Significant
Experimental	83.5	9.711	59.769	0.000	Significant

Table 4 reveals that the experimental group achieved a higher post-test mean score ($M = 83.50$, $SD = 9.71$) than the control group ($M = 77.50$, $SD = 6.98$). The experimental group obtained a p-value of 0.000, which was below the 0.05 significance level, indicating a statistically significant improvement in academic performance following the implementation of the Practical Work Approach (PWA). Students reported that hands-on activities enhanced their understanding, engagement, and retention of TLE concepts, while learners in the control group expressed difficulties in comprehending lessons through traditional instruction alone. The findings suggest that practical learning experiences enabled students to apply theoretical knowledge to real-life tasks, resulting in improved academic outcomes and greater participation in the learning process. These results are consistent with previous research indicating that experiential and activity-based instruction strengthens students' understanding, skill development, and academic achievement in technical and vocational education settings (Kibirige & Maponya, 2021).

Problem 5. Is there a significant effect of the Practical Work Approach on learners' performance in Technology and Livelihood Education?

Table 5
Regression Analysis on the Effect of Practical Work Approach on Learners' Performance in Technology and Livelihood Education

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.479	.235		6.306	.000
Practical Work Approach	.488	.069	.460	7.027	.000

Legend: S – Significant NS – Not Significant

Table 5 indicates that the Practical Work Approach (PWA) significantly influenced learners' academic performance in Technology and Livelihood Education (TLE), as evidenced by the regression results showing a positive coefficient ($B = 0.488$), $\beta = 0.460$, $t = 7.027$, and $p = 0.000$. The findings suggest that increased exposure to hands-on learning activities was associated with improved academic outcomes, knowledge retention, skill development, and the application of concepts to real-world tasks. Students reported that practical activities and timely teacher feedback enhanced their understanding, confidence, and ability to perform learning tasks effectively. The moderate-to-strong effect size further demonstrates the importance of experiential learning in skills-based subjects, where active participation promotes deeper engagement and meaningful learning. These findings support previous research showing that practical learning experiences improve students' understanding, retention, and application of knowledge while strengthening competencies needed for future careers (Garcia et al., 2022).

Problem 6. What are the implications of the findings in teaching Technology and Livelihood Education?

The findings of this study suggest that the Practical Work Approach (PWA) is an effective instructional strategy for enhancing students' academic performance, engagement, and skill development in Technology and Livelihood Education (TLE). By providing opportunities for hands-on learning, real-world application, collaboration, and guided practice, PWA enables students to develop a deeper understanding of concepts, improve knowledge retention, strengthen problem-solving abilities, and build confidence in performing technical tasks. The results further emphasize the importance of learner-centered instruction, supported by appropriate instructional materials, performance-based activities, and timely feedback, to create meaningful learning experiences that promote skill mastery and prepare students for future educational and career opportunities.

5. Conclusion and Recommendations**Conclusion**

From the conclusions derived from this research, the study indicates that the Practical Work Approach (PWA) enhances students' learning in terms of understanding both theory and practice, thus affecting their overall academic performance in TLE. Additionally, implementation of PWA allows for a variety of experiences which help them to acquire practical skills including oral tasks, assignments, and mathematical calculations as well as solving problems. As a result, students' positive attitudes towards TLE made their learning process smooth.

Recommendations

The recommendations derived from the findings of this study are:

1. The Practical Work Approach (PWA) method should be used by educators in order for students to learn in a hands-on fashion, helping them retain knowledge and develop skills more effectively. The teachers have to understand the difficulties that the students have regarding the use of technology and the equipment and to promote the best possible instruction based on valid assessment of how to deliver instruction in order to meet their special needs through practical experience.
2. The educators should stimulate both motivation and comfort level in the students/given people in regard to practical work so they can develop a more positive attitude toward educational process through the application of TLE. The students will start to interpret their problems in terms of learning rather than as obstacles in their educational process.
3. The evaluation of the prior learning experience of the students will provide the instructor with the necessary knowledge to eliminate the current learning omissions. This will ultimately lead to individualized learning courses being developed for the control group and providing this group with the information necessary to successfully learn the subject matter.
4. The evaluation of the techniques used in the experimental group will provide the instructor with insight into effective practice being applied in this situation. The evaluation of success stories in regard to the PWA process can be applied to all participants of TLE, making their learning experience better.

5. The Practical Work Approach must be continued in the TLE experience through the provision of training and the use of resources available for the preparation of educators to provide authentic application of knowledge through hands-on programs. Teachers' assessment and feedback should be implemented to monitor student progress and refine the Practical Work Approach to maximize its impact on students' learning outcomes.

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