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Teachers' Specialized Expertise and Grade 12 TVL Home Economics Strand Students' Motivation Toward TESDA National Assessment: Basis for a Teacher Development Program

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Abstract

Participation of Senior High School Technical-Vocational-Livelihood (TVL) learners in the TESDA National Assessment remained low in the Division of Davao de Oro, although Joint Memorandum Circular No. 01, s. 2024 made the assessment free. This study determined the level of specialized expertise of TVL Home Economics (HE) teachers and its relationship with the motivation of Grade 12 HE students toward the TESDA National Assessment as a basis for a teacher development program.

Anchored on the Technological Pedagogical Content Knowledge (TPACK) framework and Social Cognitive Theory, the study used a descriptive-correlational design. Thirty HE specialized teachers, through total enumeration, and 323 randomly sampled Grade 12 HE students answered a researcher-made, expert-validated questionnaire (Cronbach's $\alpha = 0.95$). Data were analyzed with frequency, percentage, weighted mean, the t-test, ANOVA and Pearson r.

Both groups rated the teachers' expertise to a very high extent in all seven domains, with the highest composite means in pedagogical knowledge ($M = 3.56$) and contextual knowledge ($M = 3.47$). Students reported a very high extent of self-efficacy ($M = 3.30$) and environmental motivation ($M = 3.36$). Teachers' expertise differed significantly by age in six domains, by sex in content knowledge, and by years of teaching and number of trainings in contextual knowledge; it did not differ by educational attainment or industry experience. Students' motivation did not differ by age or sex. Contextual knowledge was the only domain significantly related to students' environmental motivation ($r = .380$, $p = .038$).

The study concluded that contextualized, industry-linked teaching was the expertise domain tied to student motivation, and it proposed Project IMMERSE+, a teacher development program that embeds structured industry immersion in the work-immersion monitoring visits of teachers and adds TESDA-aligned pedagogical upskilling with continuous monitoring.

Keywords: *specialized expertise, TPACK, student motivation, TESDA National Assessment, TVL Home Economics*

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1. Introduction

Background and Rationale

Technical and vocational education and training (TVET) has become a core component of national development strategies, and countries such as Germany, South Korea and Australia have long relied on it to meet labor market demands and to sustain economic competitiveness (Varma & Malik, 2023). The quality of TVET rests on the competence of the educators who build learners' skills, and national competency assessments serve as the bridge between school preparation and employment (Subrahmanyam, 2020).

In the Philippines, the Technical Education and Skills Development Authority (TESDA) certifies Filipino workers through the National Competency Assessment, and this certification confirms that Senior High School (SHS) Technical-Vocational-Livelihood (TVL) learners hold skills relevant to employment and entrepreneurship. Joint Memorandum Circular No. 01, s. 2024 provided free National Certificate (NC) assessments for SHS-TVL learners (Technical Education and Skills Development Authority [TESDA], 2024). Even so, a considerable number of students remained unmotivated to take the assessment, which posed a challenge to workforce development (Arban et al., 2024). The national skills agenda envisions a highly skilled and globally competitive Filipino workforce, and TESDA (2023) identified certification of learners as a lever of that agenda.

In the Division of Davao de Oro, participation in the TESDA National Competency Assessment during School Year 2023–2024 remained low despite accessible opportunities. This pattern pointed to a disconnect between policy implementation and student engagement. Existing literature showed that learners' engagement and persistence were shaped by their perception of teacher competence and credibility (García-González et al., 2023), and Philippine studies linked the competence of TVL teachers to learner preparedness for national certification (Edralin & Pastrana, 2023; Villacorta & Arnado, 2023).

International and national studies established the link between teacher quality and learner outcomes, yet localized empirical research within the Philippine TVET context remained scarce. Few studies examined TESDA National Assessment participation among SHS-TVL learners, and fewer examined how the specialized expertise of teachers related to student motivation in a specific setting such as Davao de Oro. Most available studies focused on general teaching effectiveness or on student readiness alone. The present study addressed this gap. It measured the specialized expertise of HE teachers in seven TPACK-based domains, measured the motivation of Grade 12 HE students in terms of self-efficacy and environmental support, and examined the relationship between the two sets of variables as the basis for a teacher development program.

The study was significant to several stakeholders. For TVL students, the findings clarified how the expertise of their teachers related to their readiness and willingness to seek national certification. For teachers, the results identified domains of strength and areas for professional growth. For school administrators and policy makers in the Department of Education (DepEd) and TESDA, the evidence offered a basis for planning teacher training, setting hiring qualifications

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and revising instructional guidelines. For future researchers, the study provided a baseline for work on other TVL strands and on certification outcomes.

Review of Related Literature

Teachers are at the center of quality technical-vocational education, particularly in the SHS-TVL track. Studies on the content knowledge of technology and livelihood education (TLE) teachers reported gaps in professional exposure and in awareness of curriculum standards, and in-service training raised the mean knowledge score of teachers to 3.79 (Carreon, 2020). Salvador et al. (2022) found that SHS teachers showed a very satisfactory level of competency in subject mastery, instructional strategies and assessment practices, although gaps remained in technology integration and in alignment of assessments with competency-based standards. Teachers with more training scored higher in competency measures, and educational attainment, years of experience and specialization correlated with teaching expertise. Villacorta and Arnado (2023) added that the alignment of instructional content with TESDA standards, delivered by technically competent educators, improved students' mastery of the competencies required for national certification.

Contextual knowledge bridges theoretical knowledge and practical application in TVET. Contextual learning approaches integrate real-life scenarios into the curriculum and help students connect academic concepts with practical skills (Reddy & Revathy, 2024). The alignment of educational content with industry needs is essential in preparing TVET students for the workforce, and contextual knowledge addresses industry concerns about the quality of graduates' skills (Adnan et al., 2024). The service-dominant logic perspective views TVET as a process of value co-creation between students and enterprises (Cai & Kosaka, 2024), and a functional contextualist approach to mastery learning promotes adaptability and higher-order thinking in vocational education (Parker & Roumell, 2020).

Pedagogical knowledge is the second pillar of TVET teaching. Vocational educators require pedagogical, problem-solving and internet socialization skills for the digitalized economy (Izekor & Ojeaga, 2021). Employability skills such as communication and adaptability predicted work engagement among technical-vocational teachers (Paredes & Buenaventura, 2024), and curriculum analysis, learner-centered instruction and industry-academia collaboration emerged as core teaching competencies in the era of digital transformation (Lee & Lee, 2024). Basal (2022) assessed the instructional competencies of TLE teachers and found strong competence constrained by inadequate instructional materials, equipment and training opportunities. Dela Cruz (2024) likewise reported a significant positive association between the training of teachers and their competency.

Technology forms the third pillar. The Technology, Andragogy, Work and Content Knowledge (TAWOCK) model adapts TPACK to vocational education and stresses the alignment of technology with andragogy and work-related content (Arifin et al., 2020). Competency-based training and assessment improved technical competencies and changed pedagogical behavior among instructors (Khan et al., 2022), and a competency framework for vocational instructors in the digital transformation era placed digital skills among the required competencies (Yu et al.,

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2024). TPACK-based training programs improved the ability of teachers to use educational technology (Oktaviani & Utami, 2024), and TPACK analysis of prospective vocational teachers identified technology integration as a priority area for development (Yudiana et al., 2024).

Student motivation is the outcome side of this relationship. Motivated students develop the skills and knowledge that support personal growth and societal needs, and increased motivation prepares them for assessments and practical applications in their fields (Casiño & Tantiado, 2024; Shodmonovna, 2024). Cahyanti et al. (2024) found that teacher competence fostered student motivation, and Podungge et al. (2020) linked teacher competence to student academic achievement. Edralin and Pastrana (2023) argued that students devote the time and practice needed for skill development when they receive expert-led instruction, industry insight and continuous feedback. Taken together, the literature treated teacher expertise and student motivation as separate lines of inquiry, and limited research examined their joint relationship in the context of the TESDA National Assessment.

This study was anchored on two complementary frameworks. The first was the Technological Pedagogical Content Knowledge (TPACK) framework of Mishra and Koehler (2006), which builds on the concept of pedagogical content knowledge and describes teacher knowledge in terms of content, pedagogy and technology together with their intersections. Petko et al. (2025) updated the model and placed contextual knowledge at its outer layer, which justified the inclusion of contextual knowledge (XK) as a separate domain in this study. Under this framework, teachers with strong TPACK contextualize vocational concepts, provide hands-on and industry-aligned experiences, and use digital tools to prepare learners for competency-based certification. The second framework was Social Cognitive Theory, with self-efficacy at its center (Bandura, 1977). Self-efficacy refers to the belief of an individual in the capacity to perform a task successfully. The theory explains task engagement through the interplay of personal factors and environmental factors such as teacher influence and the learning environment. In this study, TPACK explained how teachers' knowledge shaped the delivery of vocational content, while Social Cognitive Theory explained how this delivery related to students' self-efficacy and to their perceived environmental support for taking the TESDA National Assessment. The study followed an Input-Process-Output model. The inputs were the profiles of both groups, the expertise ratings and the motivation ratings; the process covered instrument validation, data collection and analysis; and the output was a teacher development program.

Statement of the Problem

This study evaluated the level of specialized expertise among HE teachers and determined its relationship with the motivation of Grade 12 TVL Home Economics students toward participating in the TESDA National Assessment. Specifically, it sought to answer the following questions:

1. What is the demographic profile of the students in terms of age and sex, and of the teachers in terms of age, sex, highest educational attainment, number of years in teaching the specialized

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subject, number of trainings attended in the last five years and number of years in the related industry?

2. What is the level of teachers' specialized expertise, as assessed by the two groups of respondents, in terms of content knowledge (CK), pedagogical knowledge (PK), contextual knowledge (XK), technological knowledge (TK), technological pedagogical content knowledge (TPCK), technological content knowledge (TCK) and technological pedagogical knowledge (TPK)?
3. What is the extent of Grade 12 TVL Home Economics students' motivation in participating in the TESDA National Assessment in terms of self-efficacy and environmental factors?
4. Is there a significant difference in the teachers' level of expertise when grouped according to profile?
5. Is there a significant difference in the extent of students' motivation when grouped according to profile?
6. Is there a significant relationship between the teachers' level of specialized expertise and the extent of students' motivation toward participating in the TESDA National Assessment?
7. Based on the findings, what teacher development program can be proposed?

Objectives and Research Hypotheses

The study aimed to determine the level of teachers' specialized expertise and the extent of students' motivation, to test differences in both variables across respondent profiles, and to test the relationship between them. The following null hypotheses were tested at the .05 level of significance:

Ho1: There is no significant difference in the teachers' level of expertise in teaching TVL subjects when grouped according to profile.

Ho2: There is no significant difference in the extent of Grade 12 TVL Home Economics students' motivation in participating in the TESDA National Assessment when grouped according to profile.

Ho3: There is no significant relationship between the teachers' level of expertise in teaching TVL and the extent of motivation of Grade 12 TVL Home Economics students in participating in the TESDA National Assessment.

2. Materials and Methods

Research Design

The study employed a quantitative descriptive-correlational design. The design suited the purpose of the study because it described the levels of teachers' specialized expertise and students' motivation and examined the association between them without manipulation of any variable. The independent variables were the respondents' profiles and the seven domains of teachers' specialized expertise, and the dependent variable was the students' motivation toward the TESDA National Assessment in terms of self-efficacy and environmental factors. Because the design was correlational, the findings identified relationships between variables and did not establish cause and effect.

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Participants

The study was conducted in selected public senior high schools in the Division of Davao de Oro that offered the TVL Home Economics strand during School Year 2025–2026. The schools were selected purposively based on the presence of the target program, an adequate number of eligible participants, accessibility and administrative approval. The total population consisted of 1,297 Grade 12 HE students and 30 HE specialized teachers (Table 1).

All 30 teachers took part through total enumeration. The student sample of 323 was computed with the Raosoft calculator at a 95% confidence level, a 5% margin of error and a 50% response distribution, and students were selected through random sampling. Students qualified when they were in Grade 12, enrolled in the TVL Home Economics strand, had completed at least one specialized subject and had not yet taken the TESDA National Assessment. Teachers qualified when they had taught a specialized subject to the same students and held a National Certificate (NC). The combined sample was 353 respondents.

Table 1

Population and Sample Size of the Study

Respondent Group	Population (N)	Sample (n)	Sampling Technique
Grade 12 HE students	1,297	323	Random sampling
HE specialized teachers	30	30	Total enumeration
Total	1,327	353	

Note: Student sample size computed with the Raosoft calculator at a 95% confidence level and 5% margin of error.

Instruments

The study used a researcher-made questionnaire designed for HE teachers and students, with parallel teacher and student versions. Part I gathered the demographic profiles. The student version asked for age and sex. The teacher version asked for age, sex, highest educational attainment, number of years in teaching the specialized subject, number of trainings attended related to the specialized subject in the last five years and number of years of related industry experience. Part II measured the level of teachers' specialized expertise in seven domains (CK, PK, XK, TK, TPCK, TCK and TPK) with six items per domain, for a total of 42 items. Teachers rated themselves, while students rated their teachers. Part III, answered by students only, measured motivation toward the TESDA National Assessment in two dimensions, self-efficacy and environmental factors, with six items each.

All items used a four-point Likert scale. Table 2 presents the scale and the verbal interpretation applied to the weighted means in the results tables.

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Table 2

Four-Point Rating Scale and Verbal Interpretation

Scale	Range	Expertise Rating	Motivation Rating
4	3.26–4.00	Very High	Very High Extent (VHE)
3	2.51–3.25	High	High Extent (HE)
2	1.76–2.50	Low	Low Extent (LE)
1	1.00–1.75	Very Low	Very Low Extent (VLE)

Note: Ranges as applied in the results tables of the source thesis.

Three experts with at least a master's degree reviewed and validated the questionnaire; two came from Nabunturan National Comprehensive High School and one from the University of Perpetual Help System DALTA. A pilot test with 30 non-respondents checked the clarity of the items. Internal consistency was assessed with Cronbach's alpha, and the overall coefficient was 0.95, which exceeded the commonly accepted minimum of 0.70 and indicated excellent reliability.

Procedure

After expert validation and pilot testing, the researcher secured permission from the Schools Division of Davao de Oro and from the principals of the participating schools and arranged the schedule of questionnaire administration. The purpose of the study, the voluntary nature of participation and the guarantees of privacy and confidentiality were explained to the respondents, and informed consent was obtained before data collection. Respondents received ample time to answer and to ask for assistance. Responses were collected in person and electronically, according to practical constraints and school policies.

The study upheld the principles of the Belmont Report, namely respect for persons, beneficence, non-maleficence and justice (Arrant, 2020). Participation was voluntary and carried no reward. No identifying information appeared in the report, and the data were used only for the stated purpose of the study in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173). Physical questionnaires were kept in secured containers in a room accessible only to the researcher and authorized personnel, and digital backups were stored on encrypted cloud servers.

Data Analysis

The data were processed with statistical software. Frequency and percentage described the demographic profiles (research question 1). The weighted mean and standard deviation described the level of teachers' expertise and the extent of students' motivation (research questions 2 and 3); a composite mean combined the teacher and student ratings of expertise. Differences across profiles (research questions 4 and 5) were tested with the independent-samples t-test for two-group variables such as sex and educational attainment and with one-way analysis of variance (ANOVA) for variables with more than two groups. Pearson's product-moment correlation coefficient (r)

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tested the relationship between teachers' expertise and students' motivation (research question 6). All tests used the .05 level of significance.

3. Results

Demographic Profile of the Respondents

Table 3 presents the profile of the 323 student respondents. Most students were 16–19 years old (87.3%), and the remainder were 20–25 years old (7.4%), 30 years and above (3.7%) or 26–29 years old (1.5%). Female students made up 70.6% of the sample and male students 29.4%.

Table 3

Demographic Profile of the Student Respondents

Profile	f	%
Age		
16–19	282	87.3
20–25	24	7.4
26–29	5	1.5
30 and above	12	3.7
Sex		
Female	228	70.6
Male	95	29.4
Total	323	100.0

Note: n=323. f=Frequency. Percentages do not total exactly 100.0 in some groups because of rounding.

Table 4 presents the profile of the 30 teacher respondents. Most teachers were 30 years old and above (80.0%) and female (76.7%). A majority held a bachelor's degree (63.3%), while 36.7% held a master's degree. The largest group had taught the specialized subject for 8–10 years (43.3%). Equal shares of teachers had attended one training (36.7%) or two to three trainings (36.7%) related to the subject in the last five years, and 10.0% had attended none. The largest group had 6–10 years of related industry experience (43.3%), while 16.7% had no industry experience.

Table 4

Demographic Profile of the Teacher Respondents

Profile	f	%
Age		
20–25	2	6.7
26–29	3	13.3
30 and above	24	80.0
Sex		
Female	23	76.7
Male	7	23.3

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Profile	f	%
Highest educational attainment		
Bachelor's degree	19	63.3
Master's degree	11	36.7
Years in teaching specialized subject		
1–2 years	6	20.0
3–4 years	6	20.0
5–7 years	5	16.7
8–10 years	13	43.3
Trainings attended (last 5 years)		
None	3	10.0
1	11	36.7
2–3	11	36.7
4 and above	5	16.7
Years in related industry		
None	5	16.7
1 year and below	3	10.0
2–3 years	4	13.3
4–5 years	2	6.7
6–10 years	13	43.3
More than 10 years	3	10.0

Note: n=30. f=Frequency. Values as reported in the source thesis.

Level of Teachers' Specialized Expertise

Table 5 summarizes the level of teachers' specialized expertise across the seven domains as assessed by teachers and students. All domains reached a Very High Extent in the teachers' self-assessment, in the students' assessment and in the composite. Pedagogical knowledge obtained the highest composite mean (M = 3.56, SD = 0.48), followed by contextual knowledge (M = 3.47, SD = 0.46). TPCK (M = 3.40, SD = 0.50) and TPK (M = 3.40, SD = 0.55) obtained the lowest composite means. Teachers rated themselves higher than students did in every domain, and the widest gap appeared in contextual knowledge (3.59 for teachers and 3.35 for students).

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Table 5

Summary of the Level of Teachers' Specialized Expertise as Assessed by Teachers and Students

Domain	Teachers M	SD	VD	Students M	SD	VD	Composite M	SD	VD
Content Knowledge (CK)	3.48	0.49	VHE	3.36	0.58	VHE	3.42	0.54	VHE
Pedagogical Knowledge (PK)	3.67	0.41	VHE	3.45	0.56	VHE	3.56	0.48	VHE
Contextual Knowledge (XK)	3.59	0.38	VHE	3.35	0.55	VHE	3.47	0.46	VHE
Technological Knowledge (TK)	3.47	0.50	VHE	3.37	0.57	VHE	3.42	0.54	VHE
Technological Pedagogical Content Knowledge (TPCK)	3.46	0.43	VHE	3.37	0.57	VHE	3.40	0.50	VHE
Technological Content Knowledge (TCK)	3.46	0.52	VHE	3.36	0.56	VHE	3.41	0.54	VHE
Technological Pedagogical Knowledge (TPK)	3.43	0.52	VHE	3.36	0.58	VHE	3.40	0.55	VHE

Note: Overall weighted means per domain; six items per domain. M=Mean, SD=Standard Deviation, VD=Verbal Description, VHE=Very High Extent. Teachers n=30; students n=323.

At the indicator level, the teachers' highest self-ratings were for feedback that improved student performance in PK (M = 3.73, SD = 0.45), for consideration of students' backgrounds and career goals in XK (M = 3.73, SD = 0.45) and for safe and correct use of equipment in TK (M = 3.73, SD = 0.45). In CK, teachers gave the highest rating to the statement that their classes prepared students for the skills of the TESDA National Assessment (M = 3.70, SD = 0.65). Students gave their highest ratings to feedback (M = 3.55, SD = 0.63) and step-by-step processes before demonstration (M = 3.51, SD = 0.70) in PK and to safe and correct use of equipment in TK (M = 3.51, SD = 0.68). The only indicator rated at a High Extent was the students' rating of teachers who answered technical questions beyond textbook content (M = 3.24, SD = 0.80). The lowest

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teacher self-ratings were for the design of lessons that use technology to simulate TESDA workplace tasks in TPCK (M = 3.27, SD = 0.58) and for the provision of digital tools that simulate real-world applications in TCK (M = 3.27, SD = 0.51).

Extent of Students' Motivation Toward the TESDA National Assessment

Table 6 presents the extent of students' motivation. Students reported a Very High Extent of self-efficacy (M = 3.30, SD = 0.59) and of environmental motivation (M = 3.36, SD = 0.58). Within self-efficacy, the highest-rated indicator was the belief that the NC would help students get a job or start a business (M = 3.39, SD = 0.74), and the two indicators rated at a High Extent were passing the assessment on the first try (M = 3.24, SD = 0.72) and completing tasks within the required time (M = 3.23, SD = 0.76). Within the environmental dimension, school guidance on the application (M = 3.41, SD = 0.66) and school facilities for practice (M = 3.41, SD = 0.67) received the highest ratings, followed by family support (M = 3.40, SD = 0.72). Encouragement from classmates received the lowest rating (M = 3.28, SD = 0.76).

Table 6

Extent of Students' Motivation Toward the TESDA National Assessment

Indicator	M	SD	VD
Self-efficacy			
1. I believe I can meet the requirements of the TESDA assessment.	3.33	0.66	VHE
2. I am confident I can pass the assessment on my first try.	3.24	0.72	HE
3. I can complete the tasks within the required time.	3.23	0.76	HE
4. I know strategies to overcome difficulties in the assessment.	3.29	0.72	VHE
5. My classes have prepared me well for NC tasks.	3.30	0.71	VHE
6. I can use my NC to get a job or start my own business.	3.39	0.74	VHE
Overall weighted mean	3.30	0.59	VHE
Environmental			
1. My family supports my plan to take the TESDA assessment.	3.40	0.72	VHE
2. My school provides guidance on how to apply for the assessment.	3.41	0.66	VHE
3. The assessment center is accessible to me.	3.32	0.72	VHE
4. My classmates encourage me to apply for the NC.	3.28	0.76	VHE
5. School facilities help me practice for TESDA assessment.	3.41	0.67	VHE
6. The cost of the NC assessment will not stop me from applying.	3.33	0.73	VHE
Overall weighted mean	3.36	0.58	VHE

Note: n=323. M=Mean, SD=Standard Deviation, VD=Verbal Description, VHE=Very High Extent, HE=High Extent.

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Differences in Teachers' Expertise According to Profile

Table 7 presents the ANOVA results for teachers' expertise by age. Significant differences emerged in CK (F = 14.075, p = .000), PK (F = 5.529, p = .012), XK (F = 6.898, p = .004), TK (F = 6.856, p = .004), TCK (F = 5.400, p = .011) and TPK (F = 7.610, p = .002). The difference in TPCK was not significant (F = 2.577, p = .095). In every domain, the 20–25 group had the lowest mean and the 26–29 group had the highest mean.

Table 7

Difference in Teachers' Level of Expertise When Grouped According to Age

Domain	20–25 M (SD)	26–29 M (SD)	30 and above M (SD)	F	p	Interpretation
CK	2.25 (0.59)	3.83 (0.24)	3.52 (0.35)	14.075	.000*	Significant
PK	2.92 (0.59)	3.92 (0.17)	3.69 (0.37)	5.529	.012*	Significant
XK	2.92 (0.12)	3.92 (0.10)	3.60 (0.34)	6.898	.004*	Significant
TK	2.42 (0.35)	3.67 (0.39)	3.53 (0.43)	6.856	.004*	Significant
TPCK	3.08 (0.12)	3.83 (0.24)	3.42 (0.44)	2.577	.095	Not Significant
TCK	2.75 (0.35)	4.00 (0.00)	3.39 (0.49)	5.400	.011*	Significant
TPK	2.33 (0.23)	3.83 (0.34)	3.44 (0.47)	7.610	.002*	Significant

Note: One-way ANOVA. *Significant at p<.05.

Table 8 presents the t-test results by sex. Male teachers rated their content knowledge significantly higher than female teachers did (t = −2.547, p = .017). No significant differences by sex appeared in PK (t = −1.418, p = .167), XK (t = −1.608, p = .119), TK (t = −1.181, p = .248), TPCK (t = −0.636, p = .530), TCK (t = −0.826, p = .416) or TPK (t = −0.829, p = .414).

Table 8

Difference in Teachers' Level of Expertise When Grouped According to Sex

Domain	Female M (SD)	Male M (SD)	t	p	Interpretation
CK	3.36 (0.50)	3.86 (0.15)	−2.547	.017*	Significant
PK	3.61 (0.41)	3.86 (0.38)	−1.418	.167	Not Significant
XK	3.53 (0.36)	3.81 (0.37)	−1.608	.119	Not Significant
TK	3.41 (0.53)	3.67 (0.35)	−1.181	.248	Not Significant
TPCK	3.43 (0.41)	3.55 (0.53)	−0.636	.530	Not Significant
TCK	3.38 (0.54)	3.57 (0.46)	−0.826	.416	Not Significant
TPK	3.38 (0.55)	3.57 (0.52)	−0.829	.414	Not Significant

Note: Independent-samples t-test. Female n=23; male n=7. *Significant at p<.05.

Table 9 shows that teachers' expertise did not differ significantly by highest educational attainment in any domain. The p values ranged from .145 for TPCK to .988 for TPK, and bachelor's and master's degree holders obtained nearly identical means in CK, XK, TK and TPK.

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Table 9

Difference in Teachers' Level of Expertise When Grouped According to Highest Educational Attainment

Domain	Bachelor's M (SD)	Master's M (SD)	t	p	Interpretation
CK	3.48 (0.57)	3.47 (0.33)	0.067	.947	Not Significant
PK	3.63 (0.46)	3.73 (0.33)	−0.605	.550	Not Significant
XK	3.60 (0.42)	3.59 (0.29)	−0.063	.950	Not Significant
TK	3.47 (0.49)	3.47 (0.54)	0.021	.983	Not Significant
TPCK	3.54 (0.44)	3.30 (0.39)	1.50	.145	Not Significant
TCK	3.50 (0.50)	3.30 (0.56)	0.994	.329	Not Significant
TPK	3.42 (0.58)	3.42 (0.49)	−0.015	.988	Not Significant

Note: Independent-samples t-test. Bachelor's n=19; master's n=11. Significance level p<.05.

Table 10 presents the ANOVA results by number of years in teaching the specialized subject. Only contextual knowledge differed significantly (F = 3.207, p = .040), with the highest mean among teachers with 3–4 years of experience (M = 3.92) and the lowest among teachers with 5–7 years (M = 3.34). The remaining domains showed no significant differences.

Table 10

Difference in Teachers' Level of Expertise When Grouped According to Years in Teaching the Specialized Subject

Domain	1–2 yrs M (SD)	3–4 yrs M (SD)	5–7 yrs M (SD)	8–10 yrs M (SD)	F	p	Interpretation
CK	3.31 (0.88)	3.81 (0.32)	3.24 (0.25)	3.50 (0.32)	1.668	.198	Not Significant
PK	3.58 (0.59)	3.86 (0.22)	3.57 (0.38)	3.65 (0.41)	0.601	.620	Not Significant
XK	3.58 (0.53)	3.92 (0.20)	3.34 (0.37)	3.55 (0.28)	3.207	.040*	Significant
TK	3.25 (0.73)	3.83 (0.21)	3.43 (0.44)	3.42 (0.46)	1.572	.220	Not Significant
TPCK	3.58 (0.43)	3.75 (0.25)	3.23 (0.43)	3.35 (0.45)	2.001	.139	Not Significant
TCK	3.58 (0.66)	3.67 (0.41)	3.17 (0.29)	3.35 (0.55)	1.130	.355	Not Significant
TPK	3.33 (0.82)	3.72 (0.36)	3.30 (0.42)	3.37 (0.50)	0.773	.519	Not Significant

Note: One-way ANOVA. *Significant at p<.05.

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Table 11 presents the ANOVA results by number of trainings attended in the last five years. As reported in the source data, contextual knowledge differed significantly (F = 2.164, p = .040), while the other domains did not. Teachers without training obtained the lowest means in CK (M = 2.72), PK (M = 3.11), XK (M = 3.17), TK (M = 2.89) and TPK (M = 2.94).

Table 11

Difference in Teachers' Level of Expertise When Grouped According to Number of Trainings Attended

Domain	None M (SD)	1 M (SD)	2–3 M (SD)	4 and above M (SD)	F	p	Interpretation
CK	2.72 (0.77)	3.44 (0.47)	3.70 (0.29)	3.53 (0.36)	4.178	.198	Not Significant
PK	3.11 (0.67)	3.77 (0.24)	3.79 (0.33)	3.50 (0.50)	3.257	.620	Not Significant
XK	3.17 (0.34)	3.62 (0.37)	3.71 (0.37)	3.53 (0.32)	2.164	.040*	Significant
TK	2.89 (0.67)	3.38 (0.49)	3.61 (0.42)	3.73 (0.34)	2.549	.220	Not Significant
TPCK	3.34 (0.29)	3.53 (0.45)	3.35 (0.49)	3.60 (0.38)	0.571	.139	Not Significant
TCK	3.22 (0.75)	3.45 (0.58)	3.38 (0.44)	3.60 (0.59)	0.352	.355	Not Significant
TPK	2.94 (0.67)	3.42 (0.54)	3.45 (0.55)	3.63 (0.43)	1.054	.519	Not Significant

Note: One-way ANOVA. *Significant at p<.05.

Table 12 presents the ANOVA results by years of related industry experience. No domain differed significantly, with F values between 0.826 and 1.605 and p values between .197 and .544. Teachers without industry experience had the lowest means in CK, PK, TK and TPK.

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Table 12

Difference in Teachers' Level of Expertise When Grouped According to Years in the Related Industry

Domain	None	1 yr and below	2–4 yrs	4–5 yrs	6–10 yrs	More than 10 yrs	F	p	Interp.
CK	3.10 (0.89)	3.83 (0.17)	3.38 (0.37)	4.00 (0.00)	3.51 (0.36)	3.39 (0.26)	1.569	.207	NS
PK	3.37 (0.65)	4.00 (0.00)	3.63 (0.44)	4.00 (0.00)	3.63 (0.34)	3.83 (0.29)	1.398	.260	NS
XK	3.43 (0.51)	3.94 (0.10)	3.58 (0.40)	4.00 (0.00)	3.55 (0.34)	3.44 (0.34)	1.519	.221	NS
TK	3.17 (0.82)	3.78 (0.39)	3.29 (0.55)	3.75 (0.35)	3.54 (0.37)	3.44 (0.51)	0.845	.531	NS
TPCK	3.37 (0.45)	3.83 (0.29)	3.38 (0.44)	4.00 (0.00)	3.41 (0.44)	3.17 (0.29)	1.605	.197	NS
TCK	3.30 (0.67)	3.89 (0.19)	3.17 (0.70)	4.00 (0.00)	3.38 (0.43)	3.33 (0.58)	1.309	.293	NS
TPK	3.20 (0.84)	3.78 (0.39)	3.29 (0.50)	3.92 (0.12)	3.42 (0.46)	3.28 (0.63)	0.826	.544	NS

Note: Cells show M (SD). One-way ANOVA. Group labels as reported in the source table. NS=Not Significant at $p<.05$.

Differences in Students' Motivation According to Profile

Table 13 shows that students' motivation did not differ significantly by profile. Self-efficacy did not differ by age ($F = 0.410$, $p = .746$) or by sex ($t = -0.460$, $p = .646$), and environmental motivation did not differ by age ($F = 1.453$, $p = .227$) or by sex ($t = -0.617$, $p = .567$). Ho2 was therefore not rejected.

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Table 13

Difference in Students' Motivation When Grouped According to Profile

Dimension	Profile	Group	M	SD	Test Value	p	Interpretation
Self-efficacy	Age	16–19	3.29	0.57	F = 0.410	.746	Not Significant
		20–25	3.25	0.71			
		26–29	3.27	0.59			
		30 and above	3.47	0.71			
	Sex	Female	3.29	0.58	t = −0.460	.646	Not Significant
		Male	3.32	0.61			
Environmental	Age	16–19	3.36	0.57	F = 1.453	.227	Not Significant
		20–25	3.23	0.72			
		26–29	3.30	0.58			
		30 and above	3.65	0.48			
	Sex	Female	3.29	0.58	t = −0.617	.567	Not Significant
		Male	3.32	0.61			

Note: n=323. One-way ANOVA for age; independent-samples t-test for sex. Significance level $p<.05$.

Relationship Between Teachers' Expertise and Students' Motivation

Table 14 presents the correlation between the seven domains of teachers' expertise and the two dimensions of students' motivation. None of the domains correlated significantly with self-efficacy, with r values between .128 and .295. For environmental motivation, contextual knowledge showed a significant positive relationship ($r = .380$, $p = .038$). PK showed the next highest coefficient ($r = .320$, $p = .084$), but neither it nor the remaining domains reached significance. Ho3 was rejected only for the relationship between contextual knowledge and environmental motivation.

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Table 14

Relationship Between Teachers' Level of Expertise and Students' Motivation Toward the TESDA National Assessment

Teachers' Expertise	Self-Efficacy r	p	Environmental r	p
CK	.230	.222	.251	.180
PK	.207	.271	.320	.084
XK	.288	.123	.380	.038*
TK	.128	.501	.221	.241
TPCK	.295	.113	.212	.261
TCK	.206	.275	.069	.719
TPK	.224	.234	.202	.284

Note: r=Pearson correlation coefficient; p=p-value. *Significant at p<.05.

4. Discussion

Demographic Profile of the Respondents

The age profile of the students matched the expected SHS age range, a pattern that Arban et al. (2024) also observed in the TVL track. The small share of students aged 20 and above reflected late enrollees and returning learners, which is consistent with the inclusive orientation of TVET certification (TESDA, 2023). The female majority among both students and teachers mirrored enrollment and staffing patterns in Home Economics specializations such as cookery and tourism services, which Villacorta and Arnado (2023) and Edralin and Pastrana (2023) also documented. The teacher profile described a mature workforce with substantial teaching and industry exposure. Most teachers had attended at least one relevant training, a pattern that points to the role of continuing professional development in TVL staffing (Accad & Dordas, 2025; Wahab et al., 2024). The 10.0% of teachers without training and the 16.7% without industry experience, however, marked a group with limited exposure to current workplace practice.

Level of Teachers' Specialized Expertise

The Very High Extent ratings across all seven domains agreed with Salvador et al. (2022) and Dela Cruz (2024), who reported very satisfactory competence among SHS teachers in subject mastery, instructional strategies and assessment. The prominence of pedagogical knowledge reflected the demonstration-based nature of HE instruction, in which scaffolded practice and corrective feedback are central to skill acquisition (Accad & Dordas, 2025). The high rating of contextual knowledge supported the view of Adnan et al. (2024) that contextual and industry-responsive teaching is essential in TVET. The high rating of content knowledge, particularly of preparation for TESDA tasks, was consistent with the emphasis on outcomes-based and competency-aligned instruction in Philippine education reform (Alonzo et al., 2023).

The pattern of the lower ratings was also informative. The technology-integration domains, TPCK and TPK, obtained the lowest composite means, and the lowest teacher self-ratings concerned the simulation of workplace tasks with technology and the provision of digital tools for

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real-world applications. This finding echoed the gaps in technology integration that Salvador et al. (2022) and Dela Cruz (2024) identified and the call of Yu et al. (2024) and Lee and Lee (2024) for stronger digital competencies among vocational instructors. Maknun (2022) likewise found that TPACK competence among vocational teachers required continued development. The consistent gap between teacher and student ratings, which was widest in contextual knowledge, showed that students experienced their teachers' expertise at a lower level than teachers perceived it, a point that carries weight for professional development planning. The students' High Extent rating for answers to technical questions beyond the textbook indicated that applied content expertise was the area that students felt least served.

Extent of Students' Motivation Toward the TESDA National Assessment

The Very High Extent of self-efficacy showed that students believed in their capability to meet the requirements of the TESDA National Assessment. This belief aligned with Social Cognitive Theory, in which mastery experiences and supportive conditions build self-efficacy (Bandura, 1977). The highest-rated indicator, the value of the NC for employment or business, showed that students understood the practical return of certification. Shodmonovna (2024) noted that learners who feel competent and supported develop stronger confidence in skills-based tasks. The two indicators at a High Extent, a first-attempt pass and task completion within the time limit, pointed to performance anxiety under assessment conditions, which timed practice and simulated assessments can address.

The Very High Extent of environmental motivation showed that family, school and peers formed a supportive context for certification. School guidance and school facilities ranked highest, a result that agreed with Salvador et al. (2022) and Dela Cruz (2024), who linked structured school support and well-equipped learning environments to learner readiness. The ratings for assessment-center accessibility and cost showed that students did not regard distance and fees as major barriers, a result consistent with the provision of free assessment under the 2024 joint memorandum circular (TESDA, 2024). Peer encouragement ranked lowest, which pointed to peer-based activities as an area for growth. These high ratings stood in contrast to the low actual participation reported in the division, and this contrast indicated that stated motivation did not translate fully into applications for the assessment.

Differences in Teachers' Expertise According to Profile

Age was the profile variable with the widest effect on teachers' expertise. The pattern of means, however, did not follow a simple rise with age. The 26–29 group rated itself highest and the 20–25 group lowest in every domain, while the 30-and-above group fell between them. Because the 20–25 group had only two members, this result reflected the self-ratings of a very small subgroup, and it called for caution in interpretation. Even so, the finding agreed with Accad and Dordas (2025), who linked experience to content mastery, and with Wahab et al. (2024), who emphasized structured professional development for novice TVET teachers. The non-significant difference in TPCK showed that the integrated use of content, pedagogy and technology developed in a similar way across age groups, and shared training programs and common instructional practices explained this similarity.

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The significant sex difference in content knowledge, with higher means among male teachers, was confined to a single domain. The male group comprised only seven teachers, which limited the weight of this result. The absence of differences in the other six domains supported the conclusion that instructional competence in TVL depended more on training and experience than on sex (Villacorta & Arnado, 2023). The absence of differences by educational attainment indicated that a graduate degree did not translate into higher measured expertise in the TVL context, a result that agreed with Elli and Ricafort (2020), who found no significant relationship between most teacher profile variables and competencies. The literature on alternative pathways into TVL teaching, in which industry practitioners enter the profession after earning education units (Tingzon & Buyok, 2022), also helped explain why formal attainment did not separate the groups.

Years in teaching the specialized subject and number of trainings both related only to contextual knowledge. This result showed that classroom experience and relevant training mainly sharpened teachers' awareness of learning contexts, industry standards and workplace practices, which agreed with Accad and Dordas (2025). The consistently lower means of teachers without training reinforced the role of continuing professional development (Basal, 2022; Dela Cruz, 2024). The lack of differences by industry experience showed that work experience alone did not raise measured teaching expertise, and Izekor and Ojeaga (2021) observed that industry practitioners still need structured pedagogical training to turn workplace knowledge into classroom instruction.

Differences in Students' Motivation According to Profile

The absence of differences in self-efficacy and environmental motivation across age and sex showed that students shared similar levels of confidence and similar perceptions of support. This uniformity was consistent with the standardized delivery of the TVL program, in which students receive the same competency-based instruction, assessment preparation and external support regardless of background. Under Social Cognitive Theory, self-efficacy arises from mastery experiences and supportive learning conditions rather than from demographic characteristics (Bandura, 1977), and the comparable learning environments of the respondents explained the similar levels of motivation.

Relationship Between Teachers' Expertise and Students' Motivation

The central finding of the study was the significant relationship between teachers' contextual knowledge and students' environmental motivation. Students whose teachers related lessons to real-world industry demands, integrated community needs and considered learners' career goals perceived their environment as more supportive of certification. This finding agreed with Cahyanti et al. (2024), who reported that teacher competence fostered student motivation, and with Edralin and Pastrana (2023), who stressed the motivational value of real-world insight from industry-experienced teachers. It also supported the updated TPACK model of Petko et al. (2025), which places contextual knowledge as the frame within which the other knowledge domains operate.

The absence of significant relationships between any expertise domain and self-efficacy indicated that students' belief in their competence did not depend on a single aspect of teacher

expertise. Under Social Cognitive Theory, self-efficacy develops chiefly through direct mastery experiences (Bandura, 1977), and hands-on practice in specialized subjects therefore served as the main source of students' confidence. The uniformly Very High ratings of teacher expertise also restricted the variance available for correlation, which limited the size of the observed coefficients. Within the model of this study, contextual knowledge was therefore the domain of expertise with the clearest link to the environmental side of motivation, and it became the focus of the proposed teacher development program.

Implications for Practice and Policy

The findings carry four implications for practice and policy. First, professional development for TVL-HE teachers should give priority to contextual knowledge, which was the only domain related to student motivation and which grew with teaching experience and training. Industry immersion offers the most direct route to this knowledge. Second, technology integration, particularly the use of digital tools that simulate TESDA workplace tasks, needs targeted upskilling, since it received the lowest ratings. Third, the gap between high stated motivation and low actual participation calls for school-level follow-through, such as assessment readiness sessions and support with the application process. Fourth, for DepEd and TESDA, the results support policies that recognize teacher industry immersion and that monitor certification applications at the division level.

Study Limitations

The study had several limitations. The correlational design did not permit causal conclusions, and any intervention based on the findings remains preliminary until it is evaluated. The teacher sample of 30 was small, and several profile subgroups contained very few teachers, such as two teachers aged 20–25 and two teachers with 4–5 years of industry experience, which limited the stability of the group comparisons. Expertise was measured through self-ratings and student perceptions rather than through classroom observation or certification records, and the teacher self-ratings were consistently higher than the student ratings. The study covered only the Home Economics strand in selected schools of one division and excluded the Agri-Fishery Arts, Industrial Arts and ICT strands. It also did not examine external factors such as household finances or school facilities as separate predictors of motivation. Finally, motivation was measured as stated intention rather than as actual application for or performance in the TESDA National Assessment.

5. Conclusion

The study concluded that TVL-HE teachers in the Division of Davao de Oro possessed a very high level of specialized expertise in all seven TPACK-based domains, with particular strength in pedagogical and contextual knowledge and with relative weakness in technology integration. Grade 12 HE students showed a very high extent of self-efficacy and environmental motivation toward the TESDA National Assessment, and this motivation did not vary by age or sex. Teachers' expertise varied with age in most domains, while years of teaching and number of trainings related only to contextual knowledge; educational attainment and industry experience did not separate the groups. Contextual knowledge was the only domain of teacher expertise significantly related to students' environmental motivation. Teachers who link instruction to real

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workplace and community contexts therefore create the supportive environment that encourages students to pursue national certification.

Based on these findings, the study proposed Project IMMERSE+: Teacher Industry Engagement and Workplace Immersion Program, a teacher development program for School Year 2026–2027. The program institutionalizes teachers' workplace learning during their official monitoring visits to learners in work immersion, which makes industry exposure a low-cost and recurring part of professional development. Phase I covers program planning, needs assessment and industry mapping, stakeholder consultation, partnership agreements with industries, pre-immersion orientation and structured industry observation during learners' work immersion of 80 to 320 hours. Phase II covers the contextualization of learning materials, skills enhancement through workshops and coaching cycles, the application of industry-aligned practices in instruction and National Assessment readiness sessions for learners. Phase III establishes continuous monitoring of the seven expertise domains, program evaluation based on teacher feedback, learner performance and National Assessment applications, as well as recognition and sustainability planning with industry partners. The estimated budget per activity ranges from ₱1,500 to ₱5,000, with transportation and monitoring costs charged to school maintenance and other operating expenses or local funds.

Recommendations for Implementation and Future Research

TVL students should take an active part in the contextualized learning activities introduced through IMMERSE+ and give feedback on the industry-aligned instructional materials. TVL teachers should engage fully in the industry immersion and skills enhancement components, revise their lesson plans and assessments to reflect current workplace standards, and take part in coaching cycles and peer mentoring. Teachers without training or industry exposure, and teachers in the youngest age group, should receive priority in these activities. School administrators should institutionalize IMMERSE+ in the annual professional development and TVL enhancement plan, strengthen industry partnerships and allocate resources for immersion, and they should use the program's monitoring tools to track teacher expertise and certification applications.

Policy makers in DepEd, TESDA and local government units should consider IMMERSE+ as a model for teacher industry immersion, issue clear guidelines that recognize immersion during learner monitoring as professional development, and fund certification activities equitably across schools. Future researchers should evaluate the long-term effect of IMMERSE+ on teacher expertise, student motivation and actual TESDA National Assessment participation and results. They should also extend the study to other TVL strands and divisions, use larger teacher samples and observational measures of expertise, and test the relationship between expertise and motivation at the level of matched teacher-student groups.

References

Accad, A. S., & Dordas, R. (2025). Pedagogical and technical competence level, problems and competency needs of technology and livelihood education (TLE) teachers: Basis for professional development program. *Psychology and Education: A Multidisciplinary Journal, 41*(1), 1.

Adnan, M. F., Hamid, M. Z. A., Hisham, M. H. M., & Daud, M. F. (2024). Contextual knowledge in electrical technology education: A study of TVET educators' perspectives and practices in teaching and learning. *International Journal of Modern Education*. https://doi.org/10.35631/ijmoe.620012

Alonzo, D., Bejano, J., & Labad, V. (2023). Alignment between teachers' assessment practices and principles of outcomes-based education in the context of Philippine education reform. *International Journal of Instruction, 16*(1), 489–506. https://doi.org/10.29333/iji.2023.16127a

Arban, J. C., Enad, F., & Pabalan, A. (2024). The senior high school technical-vocational-livelihood track: Implementation and challenges. *Psych Educ, 26*(1), 6–12. https://doi.org/10.5281/zenodo.13875831

Arifin, Z., Nurtanto, M., Kholifah, N., Nurhaji, S., & Warju, W. (2020). The technology andragogy work content knowledge model framework on technical and vocational education and training. *Journal of Education and Learning (EduLearn), 14*(3). https://doi.org/10.11591/edulearn.v14i3.15946

Arrant, K. (2020). Ethics in research. *Journal of Interprofessional Practice and Collaboration, 2*(1), Article 4. https://repository.ulm.edu/ojihp/vol2/iss1/4

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Basal, D. V. (2022). Instructional competencies of technology and livelihood education (TLE) teachers: Basis for a competency-based module. *International Journal of Research Publications, 96*(1), 145–157. https://doi.org/10.47119/IJRP100961320222948

Cahyanti, A. D., Purwoko, B., Khamidi, A., Hariyati, N., & Roesminingsih, E. (2024). Fostering student motivation through teacher competence. *EDUKASIA: Jurnal Pendidikan dan Pembelajaran, 5*(1). https://doi.org/10.62775/edukasia.v5i1.846

Cai, J., & Kosaka, M. (2024). Conceptualizing technical and vocational education and training as a service through service-dominant logic. *SAGE Open*. https://doi.org/10.1177/21582440241240847

Carreon, J. R. (2020). Content knowledge on the highlights of the K to 12 curriculum implementation: Basis for a proposed development plan. *ASEAN Journal of Education, 6*(1), 50–56.

Online ISSN: 3082-5121
https://aijsseaf.com
Volume 2 Issue 11 (2026)

Casiño, A. A., & Tantiado, R. C. (2024). Students' motivation and academic performance in technology and livelihood education. *International Journal of Multidisciplinary Research and Analysis, 7*(3), 1343–1351. https://doi.org/10.47191/ijmra/v7-i03-59

Data Privacy Act of 2012, Republic Act No. 10173 (2012) (Phil.).

Dela Cruz, M. (2024). Implementation of the TLE-ICT program among junior high schools in District II of Quezon City in new normal setting. *International Journal of Multidisciplinary Educational Research and Innovation, 2*(2), 175–192. https://doi.org/10.17613/6vqm-t780

Edralin, D., & Pastrana, R. (2023). Technical and vocational education and training in the Philippines: In retrospect and its future directions. *Bedan Research Journal, 8*(1). https://doi.org/10.58870/berj.v8i1.50

Elli, M. C. A., & Ricafort, J. D. (2020). Competencies of grade VI teachers in technology and livelihood education (TLE). *Online Submission, 10*(4), 25425–25434.

García-González, A. J., Froment, F. A., & Bohórquez, M. R. (2023). University teacher credibility as a strategy to motivate students. *Journal of New Approaches in Educational Research, 12*, 292–306.

Izekor, A. I., & Ojeaga, J. I. (2021). The need for competencies required by vocational and technical educators for quality of job performance in technical vocational education. https://doi.org/10.37134/ajatel.vol11.2.2.2021

Khan, S. A., Ahmed, R. R., Streimikiene, D., Streimikis, J., & Jatoi, M. A. (2022). The competency-based training & assessment, and improvement of technical competencies and changes in pedagogical behavior. *E+M Ekonomie a Management*. https://doi.org/10.15240/tul/001/2022-1-006

Lee, K. E., & Lee, B. W. (2024). Components of teaching competencies required for vocational high school teachers in the era of digital transformation. *The Journal of Vocational Education Research*. https://doi.org/10.37210/jver.2024.43.4.1

Maknun, J. (2022). The technological pedagogical content knowledge (TPACK) competence of vocational high school teacher. *Jurnal Pendidikan Teknologi dan Kejuruan*. https://doi.org/10.21831/jptk.v28i1.42624

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Oktaviani, H. I., & Utami, D. D. (2024). Development of training programs to enhance teachers' digital skills with technological pedagogical content knowledge (TPACK). *Journal of Educational Technology Studies and Applied Research*. https://doi.org/10.70125/jetsar.v1i2y2024a23

Paredes, V., & Buenaventura, V. P. (2024). Employability skills and career competencies as predictors of work engagement among technical-vocational teachers. *European Journal of Education Studies*. https://doi.org/10.46827/ejes.v11i3.5254

Parker, D. A., & Roumell, E. A. (2020). A functional contextualist approach to mastery learning in vocational education and training. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2020.01479

Petko, D., Mishra, P., & Koehler, M. J. (2025). TPACK in context: An updated model. *Computers and Education Open, 8*, Article 100244. https://doi.org/10.1016/j.caeo.2025.100244

Podungge, R., Rahayu, M., Setiawan, M., & Sudiro, A. (2020). Teacher competence and student academic achievement. In *Proceedings of the 23rd Asian Forum of Business Education (AFBE 2019)* (Vol. 144, pp. 69–74). https://doi.org/10.2991/aebmr.k.200606.011

Reddy, P. J. K., & Revathy, K. (2024). Contextual learning. https://doi.org/10.1201/9781003504894-8

Salvador, R. R. E., Ramos, C. L., & Magsino, E. S. (2022). Instructional competencies of TLE teachers in selected school in the Division of Manila: Basis for a proposed intervention. *EARIST Research Services, 22*(32), 207.

Shodmonovna, Kh. D. (2024). Development of student cognitive motivation in pedagogical education. *Current Research Journal of Pedagogics*. https://doi.org/10.37547/pedagogics-crjp-05-12-16

Subrahmanyam, G. (2020). *UNESCO-UNEVOC study on the trends shaping the future of TVET teaching*. UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training. https://files.eric.ed.gov/fulltext/ED608983.pdf

Technical Education and Skills Development Authority. (2023). *National technical education and skills development plan 2023–2028*. https://www.tesda.gov.ph

Technical Education and Skills Development Authority. (2024). *Joint Memorandum Circular No. 01-2024: Ensuring quality-assured assessment for certification of senior high school technical-vocational livelihood track.* https://www.tesda.gov.ph/Media/NewsDetail/20343

Tingzon, L. L., & Buyok, H. J. A. (2022). Lived experiences of non-TLE teachers teaching TLE subjects: A phenomenological inquiry. *European Journal of Education Studies, 9*(11). https://doi.org/10.46827/ejes.v9i11.4538

Varma, C., & Malik, S. (2023). Perspective chapter: TVET in the 21st century – A focus on innovative teaching and competency indicators. In *Technical and vocational education and training*. IntechOpen. https://doi.org/10.5772/intechopen.112516

Villacorta, F. C., Jr., & Arnado, A. A. (2023). Competencies, instructional skills, and challenges of teachers in implementing the technical-vocational and livelihood senior high school

track. *International Journal of Membrane Science and Technology, 10*(2). https://doi.org/10.15379/ijmst.v10i2.1304

Wahab, N. A., Ali, D. F., & Ahmad, A. R. (2024). Professional development for novice TVET teachers: A systematic review. *International Journal of Academic Research in Progressive Education and Development*. https://doi.org/10.6007/ijarped/v13-i4/23654

Yu, D., Jung, H., & Park, M.-J. (2024). A study on the development of competency framework of vocational training instructors in the digital transformation era. *The Journal of Vocational Education Research*. https://doi.org/10.37210/jver.2024.43.1.45

Yudiana, D., Iriani, T., & Murtinugraha, R. E. (2024). Analisis kemampuan technological, pedagogical and content knowledge (TPACK) calon guru vokasional pendidikan teknik bangunan. *Jurnal Teknologi Pendidikan*. https://doi.org/10.47134/jtp.v1i3.331