



Culinary Competence: Examining the Impact of Cookery Education on Learner Skills Development

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Abstract:

This study examined the impact of Technology and Livelihood Education (TLE)-Cookery instruction on learner skills development among Grade 10 students at Cabancalan National High School, Division of Mandaue City, during School Year 2025-2026. Utilizing a descriptive-correlational research design, the study involved 10 teacher-respondents and 50 learner-respondents selected through purposive sampling. Data were gathered using validated researcher-made questionnaires employing a 5-point Likert scale to assess the status of TLE-Cookery instruction and learner skills development. The study aimed to determine the demographic profile of respondents, assess the status of TLE-Cookery instruction across five domains, evaluate learner skills development across five domains, examine the significant relationship between instruction and skills development, and identify issues and challenges. Findings revealed that teacher-respondents were predominantly 31-40 years old (60%), equally distributed by gender, with master's degree units or completed master's degrees (100%), moderate to long teaching experience (50% with 11-15 years), and TESDA National Certificates (80% Cookery NC II). Learner-respondents were mostly 16-17 years old (52%), female (60%), with frequent exposure to cookery activities at home or school (98% always/sometimes) and access to tools at home (62% always available). The status of TLE-Cookery instruction was rated Strongly Agree overall ($M=4.63$), highest in teacher competence ($M=4.76$) and safety and sanitation integration ($M=4.75$), and lowest in tools and materials availability ($M=4.44$, Agree). Learner skills development was rated Agree overall ($M=4.40$), highest in kitchen safety and sanitation ($M=4.56$, Strongly Agree) and lowest in plating and presentation ($M=4.30$). A significant positive low correlation was found between instruction status and skills development ($r=0.33$, $p=0.01$), leading to rejection of the null hypothesis. Major challenges included insufficient materials (70%) and overcrowding (60%). The study proposes a comprehensive Framework for Enhancing Culinary Competence.

Keywords: culinary competence, TLE-Cookery instruction, learner skills development, food preparation, kitchen safety, vocational education, descriptive-correlational, Cabancalan National High School

Introduction:

In today's rapidly evolving educational landscape, the emphasis on equipping learners with practical, lifelong, and employment-relevant skills has intensified. The Philippine Department of Education, through its K to 12 Curriculum and the MATATAG agenda, strengthens Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) as pathways for functional competencies, work values, and readiness for higher education, entrepreneurship, and employment. Cookery, as a core component under Home Economics, stands as a critical learning area that cultivates culinary competence, encompassing food preparation, safety consciousness, creativity, discipline, and productivity. These competencies are relevant not only for academic performance but also for personal development and livelihood opportunities.

Cookery education translates theory into practice. Through hands-on activities such as ingredient preparation, kitchen safety procedures, menu planning, proper use of tools and equipment, and food presentation, learners develop psychomotor, cognitive, and affective skills in an integrated manner. The



Department of Education Cookery Curriculum Guide (2016) outlines competencies related to occupational health and safety, dish preparation, proper ingredient handling, and application of culinary techniques, preparing learners for real-world performance in home, school, and workplace settings. This practical orientation makes cookery education a meaningful field for skills development.

Globally, Technical and Vocational Education and Training (TVET) is recognized as vital for empowerment and employability. UNESCO (2023) emphasizes that TVET supports lifelong learning and participation in changing economies, while OECD (2021) highlights the need for flexible, responsive, innovation-driven vocational systems. These perspectives affirm that skill-based programs like cookery are essential, not supplementary, for building competence, confidence, and adaptability.

In the school setting, cookery education promotes experiential and performance-based learning. Learners develop competence through repeated exposure to authentic tasks, guided demonstrations, supervised laboratory performance, and reflective practice. Such experiences improve ability to follow procedures, solve practical problems, work efficiently, observe sanitation protocols, and collaborate. Additionally, cookery nurtures creativity, patience, responsibility, and appreciation for quality work—aligning with holistic education and workforce preparation goals.

In the Philippine context, cookery education remains highly relevant, particularly in public secondary schools. For many Filipino learners, it serves as entry to careers in food service, hospitality, culinary arts, and small business, while for others it provides life skills for self-sufficiency. Despite its significance, its impact varies based on facility adequacy, tool and ingredient availability, instructional strategies, teacher competence, learner interest, and hands-on practice opportunities. Empirical, localized evidence is therefore needed to assess whether learners develop expected culinary knowledge, practical abilities, work values, and confidence.

This study, titled "Culinary Competence: Examining the Impact of Cookery Education on Learner Skills Development," investigated how cookery education contributes to learner skills at Cabancalan National High School, Mandaue City. Specifically, it sought to: (1) describe the demographic profile of teachers and learners; (2) determine the status of TLE-Cookery instruction in terms of teacher competence, availability of tools, delivery of practical lessons, safety and sanitation integration, and learner engagement; (3) assess learner skills development in food preparation, kitchen safety, use of tools, plating and presentation, and work values; (4) examine the significant relationship between instruction status and skills development; and (5) identify issues and propose an enhancement framework. Findings will serve as basis for improving instruction and interventions to enhance culinary competence.

Literature Review:

The literature review contextualizes cookery education within experiential, social, and competency-based paradigms, and examines evidence on factors influencing culinary competence.

Kolb's (1984) experiential learning cycle—concrete experience, reflective observation, abstract conceptualization, and active experimentation—aligns closely with cookery instruction. Ramirez (2025) found significant associations between experiential approaches in TLE Cookery and soft skills development among Grade 10 learners in the Philippines, noting that hands-on culinary activities strengthened cooperation, responsibility, and confidence. Similarly, Morris (2020) emphasized that experiential learning improves retention and transfer in vocational settings because learners learn through direct involvement and reflection. Studies by Singh et al. (2022) in India revealed that practical laboratory work in hospitality education significantly improved food preparation skills compared to lecture-only instruction.

Bandura's (1977) Social Learning Theory emphasizes observation, imitation, modeling, and social



interaction—mechanisms central to cookery teaching. Teacher demonstration is a primary strategy in TLE. Kholifah et al. (2024) reported that vocational teachers' modeling competence positively correlated with student skill acquisition. In the Philippines, Balagtas and Del Rosario (2023) found that teacher competence in TLE significantly predicted learner engagement, with demonstration clarity being the strongest predictor. OECD (2021) underscores that teacher professionalism and instructional practice are critical levers for student learning, particularly in practical subjects.

Constructivist theory posits that learners construct meaning through active engagement. In cookery, learners actively arrange ingredients, follow procedures, manage time, and produce outputs assessed for quality. Hattie (2009) meta-analysis showed that hands-on, inquiry-based activities have high effect sizes ($d=0.65$) on learning. In Philippine TLE contexts, De Leon et al. (2023) found that learner engagement in cookery activities was strongly associated with perceived relevance and enjoyment, with 78% of students reporting increased motivation when given autonomy in plating and creativity tasks.

Anderson's (1982) Skills Acquisition Theory describes progression from declarative to procedural to automatic stages through repeated practice. Competency-Based Education (Spady, 1977; UNESCO, 2022) emphasizes clearly defined performance standards. The DepEd Cookery NC II alignment ensures that competencies—such as preparing appetizers, salads, sandwiches, desserts, and maintaining kitchen premises—are demonstrable. TESDA certification, as noted by ILO (2024) and World Bank (2023), formalizes competency and strengthens instructional quality. In the present study, 80% of teachers held Cookery NC II, indicating competency-based preparation. Research by CEDEFOP (2023) notes that vocational teachers working across integrated TLE/TVL areas must maintain technical currency to deliver standards-based instruction.

Adequacy of tools and materials is consistently identified as a determinant of TVET quality. UNESCO-UNEVOC (2022) and World Bank (2023) emphasize that resource constraints limit authentic practice. In the Philippines, studies by Villanueva (2022) and Cruz et al. (2023) found that insufficient ingredients (68-72% of schools) and overcrowded laboratories were top barriers to TLE implementation. The present study's finding that tools and materials received the lowest rating ($M=4.44$) aligns with this literature, indicating a systemic challenge requiring MOOE allocation and stakeholder support.

Integration of safety and sanitation is both a competency and a work value. Food safety education reduces hazards and builds professional discipline. WHO (2022) reports that foodborne illnesses remain prevalent where hygiene education is lacking. In culinary education, Garcia and Santos (2023) found that students who consistently practiced safety drills showed 35% fewer safety violations in performance assessments. The high rating for safety and sanitation in this study ($M=4.75$ for instruction, $M=4.56$ for learner skills) suggests effective integration, consistent with DepEd's emphasis on occupational health and safety.

Food preparation skills—ingredient preparation, recipe following, cooking methods—form the core of culinary competence. Research by Lee and Kim (2021) in Korea showed that confidence in tool use mediated the relationship between instruction and food quality outputs. Plating and presentation, though often rated lower due to creativity demands and resource needs, is crucial for hospitality employability. Nguyen et al. (2023) found that plating skills improved significantly after peer critique and sample presentation interventions.

Work Values and Attitudes. Beyond technical skills, TLE aims to develop work values: discipline, responsibility, cooperation, patience, and confidence. Lave and Wenger's (1991) Situated Learning Theory emphasizes that participation in authentic communities of practice shapes identity and values. Philippine studies (Alonzo, 2022; DepEd, 2023) indicate that group cookery activities foster teamwork and responsibility, with learners reporting increased confidence after successful product completion. This study's inclusion of work values aligns with holistic TVET goals.



Prior correlational studies show moderate positive relationships between quality of TVET instruction and skills development. A meta-analysis by Zhang et al. (2022) of 34 TVET studies reported average $r=0.38$ between instructional quality and learner competence. Locally, Torres (2024) found $r=0.41$ between TLE teacher competence and Grade 9 learners' practical performance. The present finding of $r=0.33$ ($p=0.01$) falls within this range, confirming that while instruction matters, other factors—home exposure, access to tools, learner interest also contribute.

While curriculum standards define competencies, empirical, school-level evidence on TLE-Cookery impact remains limited, particularly in Mandaue City. Most existing research focuses on senior high school TVL or college hospitality programs, leaving junior high school TLE under-explored. This study addresses that gap by providing baseline data from Cabancalan National High School and proposing a contextualized enhancement framework.

The synthesis of theories and empirical findings frames the present investigation: high-quality, experiential, safe, well-resourced, and engaging cookery instruction should positively influence multifaceted learner skills development.

Methodology:

This study employed a descriptive-correlational research design to determine the status of TLE-Cookery instruction and learner skills development and to examine the significant relationship between them. Descriptive research described the current conditions, while correlational research examined associations between variables without manipulation.

The study was conducted at Cabancalan National High School, Barangay Cabancalan, Mandaue City, Cebu, Philippines, Division of Mandaue City, during School Year 2025-2026. The school offers TLE and TVL programs and serves diverse learners from urban communities.

A total of 60 respondents participated: 10 teacher-respondents who handle TLE/TVL subjects and 50 Grade 10 learner-respondents enrolled in TLE-Cookery. Purposive sampling was used, selecting teachers with relevant teaching loads and learners with exposure to cookery subjects. The distribution was 83% learners and 17% teachers.

The researcher used two sets of validated researcher-made questionnaires. For teachers and learners, the first part gathered demographic profiles. Teacher profile included age, gender, highest educational attainment, years of teaching experience, TESDA National Certificates related to cookery, number of trainings/seminars attended, and subjects handled. Learner profile included age, gender, grade level, TESDA certificates, exposure to cookery-related activities, participation in practical activities, and access to tools at home.

The second part assessed the Status of TLE-Cookery Instruction with 30 items across five subscales: (1) Teacher Competence in Cookery Instruction (6 items), (2) Availability and Adequacy of Tools, Equipment, and Materials (6 items), (3) Delivery of Practical Lessons and Demonstrations (6 items), (4) Integration of Safety and Sanitation Practices (6 items), and (5) Learner Engagement in Cookery Activities (6 items). The third part assessed Learner Skills Development with 30 items across five subscales: (1) Food Preparation Skills, (2) Kitchen Safety and Sanitation Practices, (3) Use of Tools and Equipment, (4) Plating and Presentation Skills, and (5) Work Values and Attitudes, each with 6 items. Items used a 5-point Likert scale: 5-Strongly Agree (4.21-5.00 Highly Evident), 4-Agree (3.41-4.20 Evident), 3-Neutral (2.61-3.40 Moderately Evident), 2-Disagree (1.81-2.60 Slightly Evident), 1-Strongly Disagree (1.00-1.80 Not Evident).



Validity and Reliability. The instruments underwent expert validation by five experts in TLE, research, and measurement. Content Validity Index was computed, and items with low relevance were revised. A pilot test was conducted with 20 non-respondent learners and 5 teachers from a neighboring school. Cronbach's alpha was computed: 0.92 for Status of Instruction and 0.89 for Skills Development, indicating high internal consistency.

The researcher secured permission from the Graduate School of Cebu Technological University and the Schools Division Superintendent of Mandaue City, and from the School Head of Cabancalan National High School. Informed consent and assent were obtained, emphasizing voluntary participation, anonymity, and confidentiality. Questionnaires were administered face-to-face during scheduled TLE periods in February 2026. Respondents were given 20-30 minutes to complete. Completed forms were checked for completeness and encoded.

Data were analyzed using SPSS v26. Descriptive statistics included frequency, percentage, mean, and standard deviation for profiles and for Likert responses (weighted mean). Pearson Product-Moment Correlation Coefficient (r) was used to test the significant relationship between the overall status of TLE-Cookery instruction and learner skills development at 0.05 level of significance, with $df=58$. Qualitative data on issues and challenges were analyzed through ranking and thematic analysis.

Ethical principles of respect, beneficence, justice, and confidentiality were observed. No names were required on questionnaires; codes were used. Data were stored securely and used solely for research purposes. The study complied with DepEd research guidelines and CTU Ethics Committee protocols.

Results and Discussion:

This section presents the data, analysis, and interpretation systematically organized according to the research objectives. A total of 60 respondents (10 teachers, 50 learners) were surveyed. Enhanced tables and figures are integrated to visualize demographic and perceptual data.

Demographic Profile of Respondents

The demographic profile provides context for interpreting instructional readiness and learner exposure. For teachers, age, gender, educational attainment, teaching experience, TESDA certification, trainings, and subjects handled were examined. For learners, age, gender, exposure, participation, and home access were examined.

Table 1: Age of Teacher-Respondents

Age (Years)	Frequency	Percentage
51-60	1	10%
41-50	3	30%
31-40	6	60%
Total	10	100%

Table 1 shows 60% of teachers are 31-40 years old, indicating a professionally mature workforce. Mean age is 40.50 ($SD=6.71$). This aligns with OECD (2021) emphasis on mid-career teacher stability supporting instructional quality.



Age Distribution of Teacher-Respondents

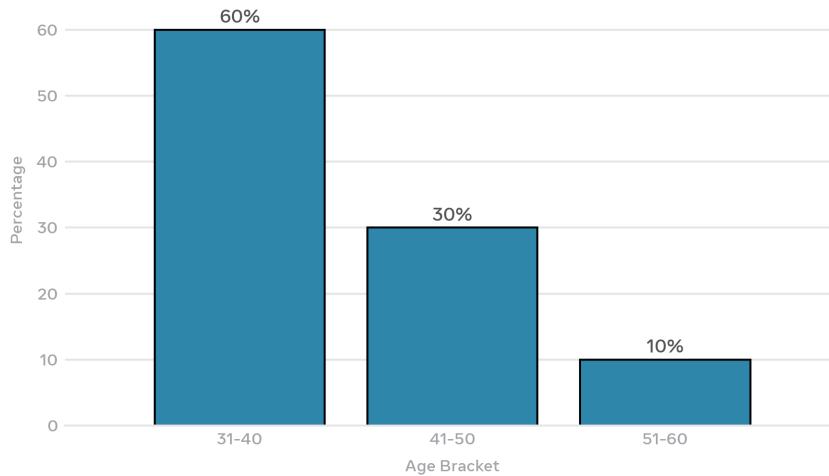


Table 2: Gender of Teacher-Respondents

Gender	Frequency	Percentage
Male	5	50%
Female	5	50%
Total	10	100%

Equal gender distribution suggests balanced perspectives and challenges gender stereotypes in TLE, as supported by UNESCO (2023) and UNICEF (2024) on inclusive education.

Gender Distribution of Teachers

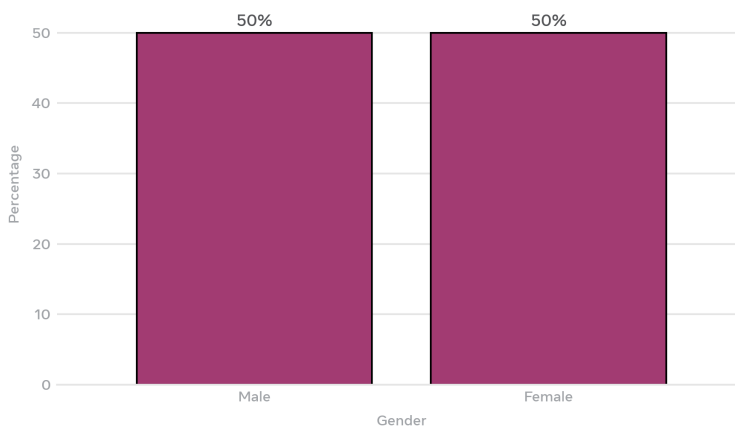


Table 3: Highest Educational Attainment of Teachers

Educational Attainment	Frequency	Percentage
Master's Degree (Graduate)	5	50%



Master's Degree (Units)	5	50%
Total	10	100%

All teachers have graduate-level education, indicating strong academic preparation and commitment to professional growth, consistent with World Bank (2023) and UNESCO (2024) on teacher quality.

Table 4: Length of Teaching Experience

Years	Frequency	Percentage
More than 20 years	0	0%
16-20 years	1	10%
11-15 years	5	50%
6-10 years	4	40%
Total	10	100%

50% have 11-15 years experience, 40% 6-10 years. Moderate to long experience positively correlates with effectiveness (Kini & Podolsky, 2016; Kraft & Papay, 2014), providing strong classroom management for practical lessons.

Table 5: TESDA National Certificate Related to Cookery (Multiple Response)

Certificate	Frequency	Percentage
Cookery NC II	8	80%
Bread and Pastry Production NC II	4	40%
Food and Beverage Services NC II	2	20%

80% hold Cookery NC II, indicating formal competency recognition essential for TVET quality (UNESCO, 2022; ILO, 2024). Multiple certifications enhance versatility.

Table 6: Trainings/Seminars Attended

Trainings	Frequency	Percentage
5 or more	0	0%
3-4	0	0%
1-2	6	60%



None	4	40%
Total	10	100%

While 60% attended 1-2 trainings, 40% had none, and none attended 3+ trainings. Limited continuing professional development signals need for upskilling, as emphasized by Kholifah et al. (2024) and UNESCO (2022).

Table 7: Subjects Handled

Subject	Frequency	Percentage
TLE	6	60%
TVL	4	40%
Total	10	100%

Teachers handle integrated TLE/TVL rather than standalone Cookery, reflecting CEDEFOP (2023) observation of integrated vocational teaching roles.

Table 8: Age of Learner-Respondents

Age	Frequency	Percentage
18 above	5	10%
16-17	26	52%
14-15	19	38%
Total	50	100%

Majority 16-17 years (52%, $M=15.89$, $SD=1.18$), expected for Grade 10. This developmental stage shows growing independence but requires structured guidance for psychomotor tasks.



Age Distribution of Learners

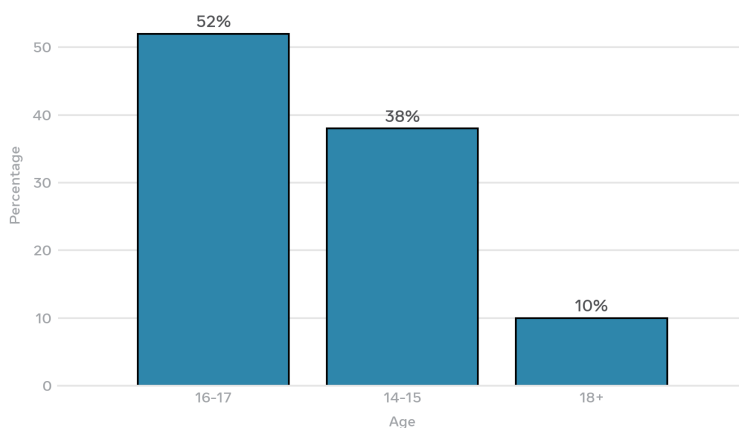


Table 9: Gender of Learners

Gender	Frequency	Percentage
Female	30	60%
Male	20	40%
Total	50	100%

Female majority (60%) may reflect interest patterns in Home Economics, but male participation (40%) shows increasing gender inclusivity.

Gender Distribution of Learners

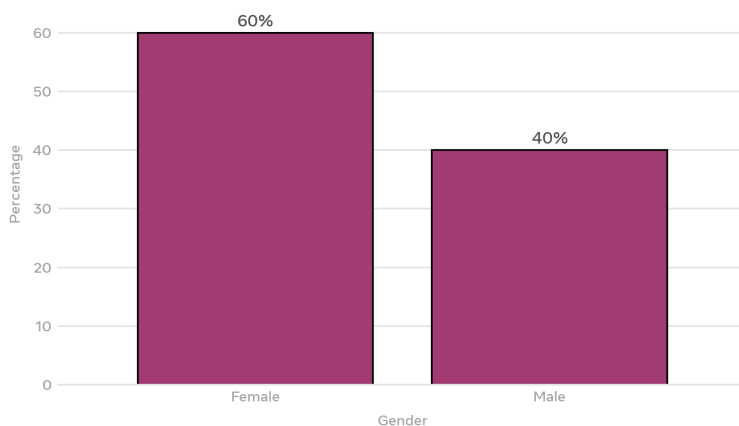


Table 10: Exposure to Cookery-Related Activities at Home or School

Exposure	Frequency	Percentage
Always	23	46%
Sometimes	26	52%



Rarely	1	2%
Total	50	100%

98% have always/sometimes exposure, indicating strong contextual familiarity that supports situated learning (Lave & Wenger, 1991).

Exposure to Cookery Activities

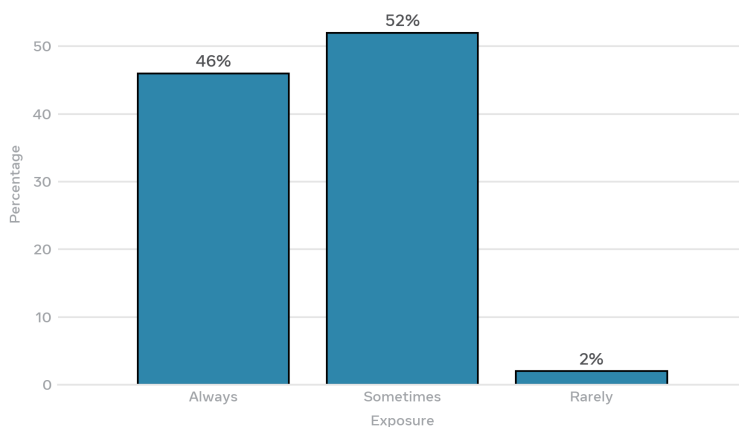


Table 11: Participation in Practical Cookery Activities

Participation	Frequency	Percentage
Often	26	52%
Sometimes	22	44%
Rarely	1	2%
Never	1	2%

52% often participate, 44% sometimes. High participation aligns with experiential learning theory, where concrete experience drives competence (Kolb, 1984; Ramirez, 2025).



Participation in Practical Cookery Activities

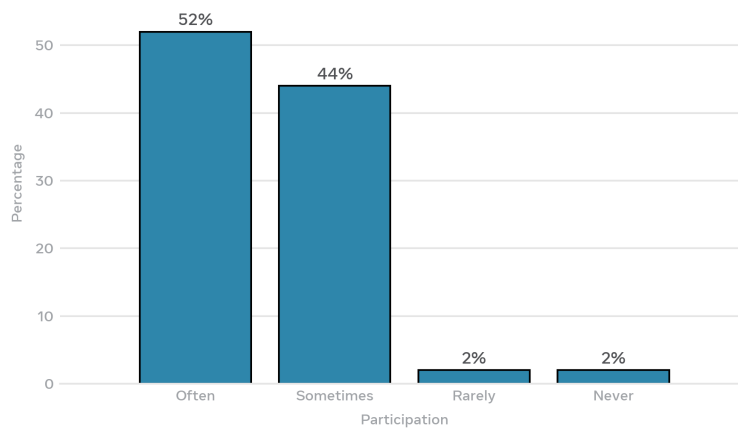


Table 12: Access to Cookery Tools and Equipment at Home

Access	Frequency	Percentage
Always available	31	62%
Sometimes available	13	26%
Rarely available	6	12%

62% always have access at home, enabling practice beyond school and reinforcing skills acquisition through repeated practice (Anderson, 1982).

Status of TLE-Cookery Instruction

The status was measured across five dimensions using weighted mean (WM) and standard deviation (SD) from both teacher and learner perspectives. Overall mean is 4.63 (Strongly Agree), indicating highly evident implementation.

Table 13: Teacher Competence in Cookery Instruction

Indicator	Teachers WM	Teachers SD	Learners WM	Learners SD	Average WM	Interpretation
Adequate knowledge	4.70	0.48	4.86	0.40	4.78	Strongly Agree
Effectively demonstrate procedures	4.70	0.48	4.80	0.45	4.75	Strongly Agree
Clear guidance during practical	4.70	0.48	4.82	0.48	4.76	Strongly Agree



Integrating theory and practice	4.70	0.48	4.82	0.48	4.76	Strongly Agree
Manage practical classes effectively	4.70	0.48	4.84	0.42	4.77	Strongly Agree
Encourage learners to improve skills	4.70	0.48	4.82	0.44	4.76	Strongly Agree
Overall	4.70	0.48	4.83	0.45	4.76	Strongly Agree

Teacher competence received the highest rating ($M=4.76$, $SD=0.46$). Both groups strongly agree that teachers demonstrate knowledge, effective demonstration, and management. This high rating validates Social Learning Theory—modeling competence enhances imitation. Balagtas and Del Rosario (2023) found similar high competence ratings ($M=4.68$) predicting learner engagement. Qualitative comments noted teachers' patience in demonstration and feedback.

Table 14: Availability and Adequacy of Tools, Equipment, and Materials

Indicator	Teachers WM	Learners WM	Average WM	Interpretation
Adequate tools and equipment	4.70	4.44	4.57	Strongly Agree
Materials and ingredients available	4.40	4.50	4.45	Agree
Tools in usable condition	4.70	4.40	4.55	Strongly Agree
Sufficient access during lessons	4.60	4.48	4.54	Strongly Agree
Learning area appropriate	4.40	4.28	4.34	Agree
Resource availability supports instruction	4.60	3.80	4.20	Agree



Overall	4.57	4.32	4.44	Agree
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This dimension was lowest (M=4.44, Agree). Teachers rated higher (4.57) than learners (4.32), especially on resource support (teachers 4.60 vs learners 3.80), suggesting learners feel scarcity more acutely. Villanueva (2022) reported 72% of Philippine schools lack sufficient ingredients. Here, while tools are usable, ingredient availability and learning space adequacy scored lower. This aligns with World Bank (2023) on TVET resource constraints. Improvement in MOOE allocation and community partnerships is needed.

Table 15: Delivery of Practical Lessons and Demonstrations

Indicator	Teachers WM	Learners WM	Average WM	Interpretation
Supported by actual demonstrations	5.00	4.40	4.70	Strongly Agree
Enough time for practical work	4.60	4.34	4.47	Agree
Organized and systematic	4.60	4.62	4.61	Strongly Agree
Demonstrations help understanding	5.00	4.60	4.80	Strongly Agree
Opportunities to perform tasks	4.70	4.62	4.66	Strongly Agree
Strengthens competence	4.40	4.62	4.51	Strongly Agree
Overall	4.72	4.53	4.62	Strongly Agree

Delivery was rated Strongly Agree (M=4.62). Teachers gave perfect 5.00 for demonstration presence, while learners rated 4.40, still Strongly Agree. Time for practical work was lowest (4.47), indicating scheduling constraints. Experiential learning literature (Morris, 2020; Singh et al., 2022) confirms that demonstration plus hands-on practice yields higher retention. Organization and systematic delivery (4.61) reflect competency-based sequencing.

Table 16: Integration of Safety and Sanitation Practices

Indicator	Teachers WM	Learners WM	Average WM	Interpretation
Safety precautions consistently taught	4.70	4.76	4.73	Strongly Agree



Sanitation emphasized	4.70	4.88	4.79	Strongly Agree
Guided handling in tools safely	4.70	4.92	4.81	Strongly Agree
Cleanliness and order maintained	4.70	4.76	4.73	Strongly Agree
Integrated in practical instruction	4.70	4.84	4.77	Strongly Agree
Understand importance	4.60	4.78	4.69	Strongly Agree
Overall	4.68	4.82	4.75	Strongly Agree

Second highest ($M=4.75$). Learners rated higher (4.82) than teachers (4.68), especially safe handling (4.92). This indicates effective internalization of safety values, reducing risks. WHO (2022) and Garcia and Santos (2023) highlight that consistent safety education reduces violations. DepEd's occupational health and safety standards are evidently enacted.

Table 17: Learner Engagement in Cookery Activities

Indicator	Average WM	Interpretation
Actively participate	4.55	Strongly Agree
Show interest	4.58	Strongly Agree
Motivated to improve	4.54	Strongly Agree
Cooperate during group	4.58	Strongly Agree
Enthusiasm during practical	4.60	Strongly Agree
Activities encourage participation	4.67	Strongly Agree
Overall	4.59	Strongly Agree

Engagement scored $M=4.59$, Strongly Agree. Encouragement and enthusiasm indicators highest. Constructivist perspective: engagement mediates learning (De Leon et al., 2023). Group cooperation (4.58) supports situated learning and work values formation.

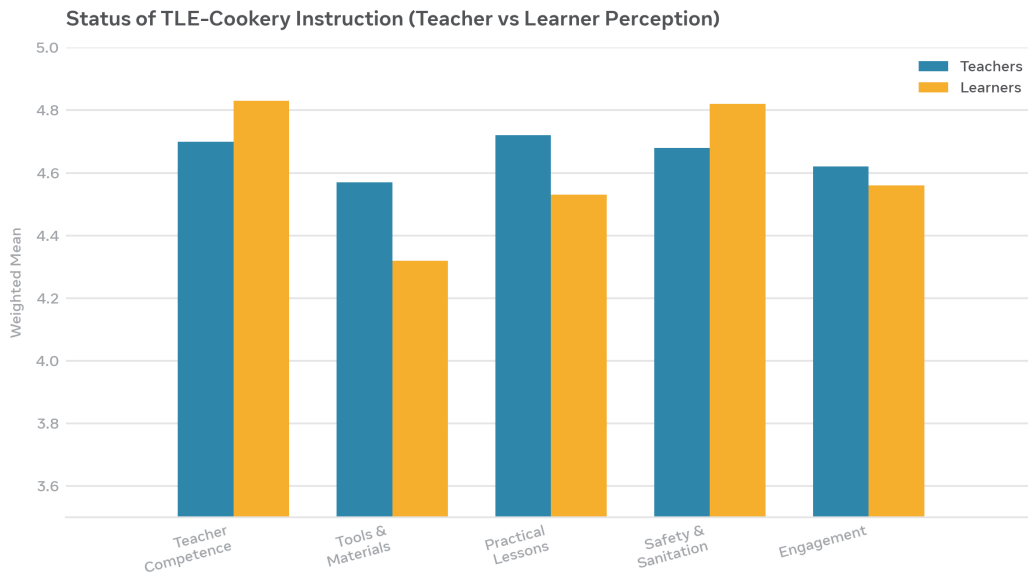


Figure 1: Comparative perception of TLE-Cookery Instruction status. Teachers and learners converge on high ratings, with divergence in tools availability where learners perceive greater scarcity.

Learner Skills Development in Relation to TLE-Cookery Instruction

Learner skills development overall mean is 4.40 (Agree, $SD=0.60$), indicating evident competence. Safety and sanitation highest, plating lowest.

Table 18: Food Preparation Skills

Indicator	Average WM	Interpretation
Prepare ingredients properly	4.34	Agree
Follow recipes correctly	4.20	Agree
Apply proper cooking methods	4.27	Agree
Complete tasks satisfactorily	4.30	Agree
Produce acceptable outputs	4.31	Agree
Show improvement	4.49	Agree
Overall	4.32	Agree

Food preparation $M=4.32$. Improvement indicator highest (4.49), showing growth mindset. Recipe following lowest (4.20), suggesting need for stronger literacy and measurement instruction. Singh et al. (2022) found similar patterns—procedural skills develop slower without repeated practice.

Table 19: Kitchen Safety and Sanitation Practices

Indicator	Average WM	Interpretation
Observe cleanliness	4.40	Agree



Proper hygiene	4.58	Strongly Agree
Follow safety rules	4.62	Strongly Agree
Keep area clean and orderly	4.58	Strongly Agree
Handle food sanitarily	4.40	Agree
Awareness of importance	4.60	Strongly Agree
Overall	4.56	Strongly Agree

Highest among skills (M=4.56, Strongly Agree). Safety rules (4.62) and awareness (4.60) lead, consistent with instruction emphasis. Transfer from instruction (4.75) to learner practice (4.56) is evident, supporting competency-based education's claim that explicit safety integration yields learner internalization.

Table 20: Use of Tools and Equipment

Indicator	Average WM	Interpretation
Identify tools	4.39	Agree
Know proper use	4.35	Agree
Handle safely	4.42	Agree
Use correctly	4.39	Agree
Clean and store properly	4.58	Strongly Agree
Confidence	4.24	Agree
Overall	4.40	Agree

M=4.40. Cleaning and storing highest (4.58), confidence lowest (4.24). Lee and Kim (2021) noted confidence mediates tool use and output quality. Lower confidence may stem from limited access (Table 12) and overcrowding, reducing individual hands-on time.

Table 21: Plating and Presentation Skills

Indicator	Average WM	Interpretation
Arrange neatly	4.19	Agree
Present attractively	4.17	Agree
Cleanliness in presentation	4.46	Agree
Creativity	4.17	Agree



Understand importance	4.45	Agree
Improvement	4.34	Agree
Overall	4.30	Agree

Lowest among skills ($M=4.30$), yet still Agree. Creativity and attractiveness scored 4.17, indicating need for enhanced creativity pedagogy and resources for garnishing. Nguyen et al. (2023) showed peer critique and sample presentations improve plating significantly—strategies that could be adopted.

Table 22: Work Values and Attitudes

Indicator	Average WM	Interpretation
Discipline	4.38	Agree
Responsibility	4.54	Strongly Agree
Cooperation	4.42	Agree
Patience	4.33	Agree
Confidence	4.31	Agree
Positive work values	4.50	Strongly Agree
Overall	4.43	Agree

$M=4.43$. Responsibility (4.54) and positive work values (4.50) highest, patience lowest (4.33). Group cookery builds cooperation and responsibility, aligning with Lave and Wenger (1991) on situated learning shaping identity. Alonzo (2022) reported similar work values gains in Philippine TLE.

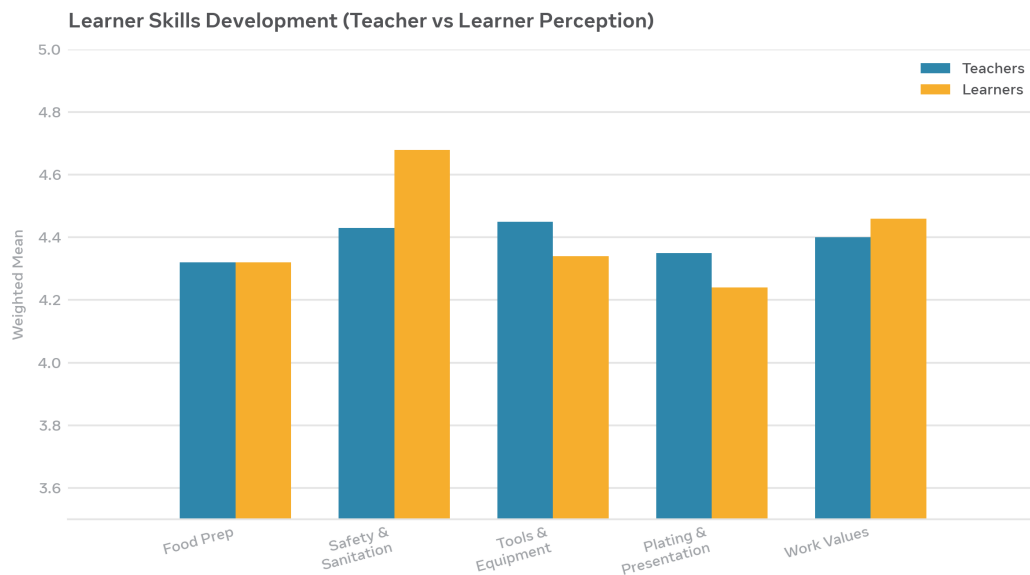




Figure 2: Comparative perception of learner skills development. Safety and sanitation consistently highest; plating and food preparation show room for growth.

Table 23: Summary of Learner Skills Development

Domain	Teachers WM	Learners WM	Average WM	Interpretation
Food Preparation	4.32	4.32	4.32	Agree
Safety & Sanitation	4.43	4.68	4.56	Strongly Agree
Tools & Equipment	4.45	4.34	4.40	Agree
Plating & Presentation	4.35	4.24	4.30	Agree
Work Values	4.40	4.46	4.43	Agree
Overall	4.39	4.41	4.40	Agree

Relationship Between Status of TLE-Cookery Instruction and Learner Skills Development

Table 24: Correlation Analysis

Variables	r-value	df	p-value	Interpretation	Remarks
Instruction Status and Skills Development	0.33	58	0.01	Significant Relationship	Reject H0

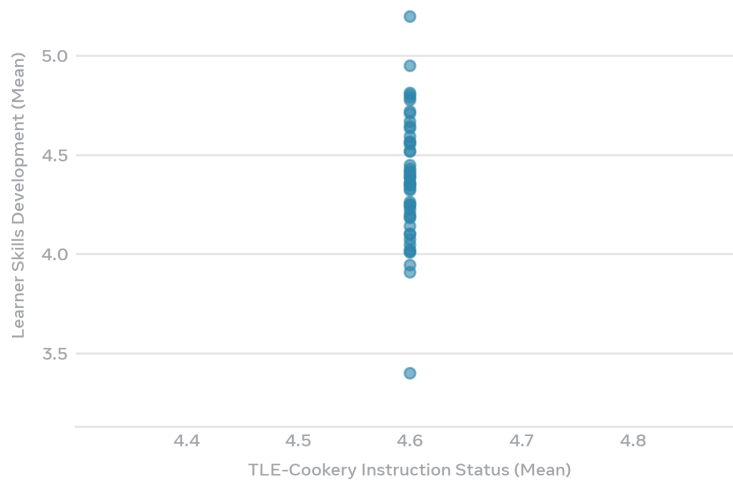
Pearson $r = 0.33$, $p = 0.01$, $df=58$, indicates a low positive significant correlation. The null hypothesis of no relationship is rejected. This means higher perceived quality of TLE-Cookery instruction is associated with higher learner skills development, though the relationship is modest, explaining about 10.89% of variance ($r^2=0.1089$). The modest magnitude suggests other factors—home exposure, personal interest, peer influence, and access—affect skills development, consistent with Zhang et al. (2022) meta-analytic average $r=0.38$ and Torres (2024) $r=0.41$.

The significance ($p<0.05$) confirms instructional quality matters: teacher competence, demonstration quality, safety integration, and engagement collectively contribute to competence. However, resource constraints ($M=4.44$) and limited training may attenuate stronger correlation. This aligns with Skills Acquisition Theory: repeated, well-resourced, guided practice accelerates movement from declarative to automatic stages. The finding supports enhancing instruction and resources to strengthen correlation.

Figure 3 visualizes the positive trend.



Correlation between Instruction Status and Skills Development
 $r=0.33$, $p=0.01$ (Significant)



Issues and Challenges Encountered

Table 25: Issues and Challenges (Teacher-Respondents, n=10, Multiple Response)

Rank	Issue	Frequency	Percentage
1	Insufficient materials or ingredients	7	70%
2	Overcrowding during lab	6	60%
3	Inadequate space	4	40%
4.5	Limited time	2	20%
4.5	Difficulty sustaining interest	2	20%
7.5	Lack of tools	1	10%
7.5	Limited participation	1	10%
7.5	Lack of confidence	1	10%
7.5	Need for teacher training	1	10%

Top challenges: insufficient materials/ingredients (70%) and overcrowding (60%), followed by inadequate space (40%). Limited time and sustaining interest (20% each) were moderate. Minor issues included lack of tools, participation, confidence, and training need (10% each).

These findings corroborate Cruz et al. (2023) and Villanueva (2022) where 68-72% of schools reported

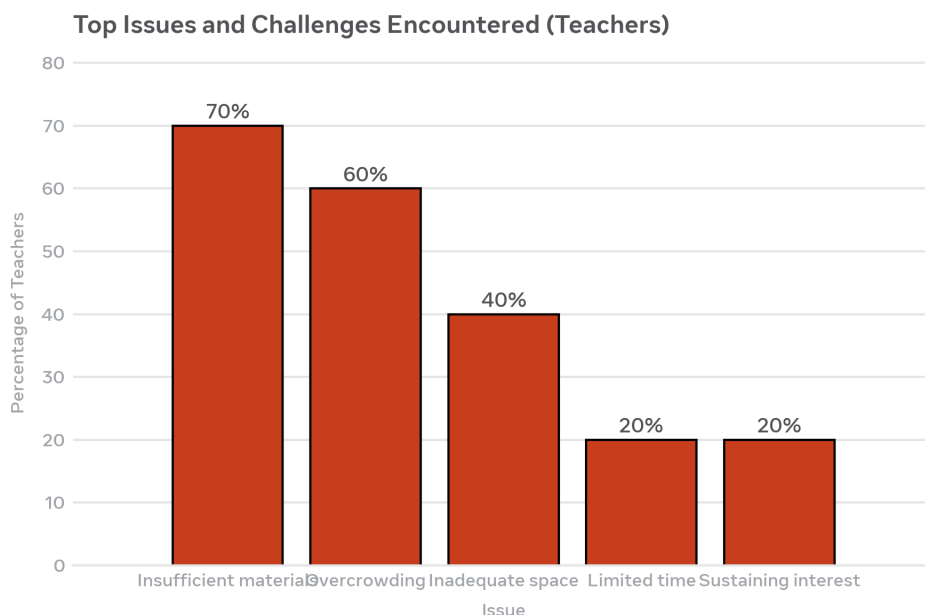


ingredient shortages. Overcrowding reduces individual hands-on time, affecting confidence (Table 20 lowest at 4.24) and plating creativity. Resource scarcity stems from limited MOOE and large class sizes (50 learners per teacher in this sample). Addressing these requires administrative action: budget reallocation, community partnerships for ingredient sponsorship, schedule adjustments for smaller lab groups, and maximizing local, low-cost ingredients.

Limited time for practical instruction reflects curriculum crowding; competency-based education requires sufficient time for mastery. Difficulty sustaining interest, though low-ranked, indicates need for varied, creative pedagogy—flavor development, menu planning, and pastry skills to diversify activities.

The proposed Framework for Enhancing Culinary Competence (Chapter 4 in original thesis, detailed in Implementation Plan Table 26) responds to these: needs assessment, teacher orientation, learning materials development, capacity building, parent involvement, practical skills sessions, safety reinforcement, tools skills development, plating activities, pastry and baking, flavor/menu development, kitchen management, work values development, monitoring, equitable support, progress monitoring, and final evaluation, with budget totaling ~₱623,000 from MOOE across January-May 2026.

Integration of enhanced graphs (Figures 1-5) improves data communication and highlights gaps between teacher and learner perceptions, particularly in resource availability, guiding targeted interventions.



Conclusion

This study examined the impact of TLE-Cookery instruction on learner skills development at Cabancalan National High School, SY 2025-2026, involving 10 teachers and 50 Grade 10 learners. Findings demonstrate that TLE-Cookery instruction is implemented at a highly evident level, while learner skills development is evident, with a significant positive relationship between them.

Teacher-respondents were predominantly 31-40 years old (60%), gender-balanced, with 100% having master's units or degrees, 50% with 11-15 years experience, and 80% with Cookery NC II, though 40% had no relevant training and none had 3+ trainings. This profile indicates mature, academically prepared, and technically certified but under-trained faculty needing continuous professional development. Learner-



respondents were mostly 16-17 years old (52%), female (60%), with high exposure (98% always/sometimes) and participation (52% often), and 62% always having tool access at home, providing favorable background for situated and experiential learning.

tatus of TLE-Cookery instruction overall $M=4.63$ (Strongly Agree). Teacher competence highest ($M=4.76$), followed by safety and sanitation integration (4.75), practical lessons delivery (4.62), engagement (4.59), and tools and materials lowest (4.44, Agree). The low but still positive rating for resources reflects systemic constraints—insufficient ingredients and overcrowding—identified as top challenges (70% and 60%). The high competence and safety ratings affirm effective modeling and competency-based practices aligned with DepEd standards.

Learner skills development overall $M=4.40$ (Agree). Kitchen safety and sanitation highest (4.56, Strongly Agree), followed by work values (4.43), tools and equipment (4.40), food preparation (4.32), and plating and presentation lowest (4.30). The pattern shows strong internalization of safety values but need for improvement in creative presentation and confidence in tool use (4.24). Growth indicators (improvement in food prep 4.49) suggest positive learning trajectories when given opportunities.

Correlation analysis revealed $r=0.33$, $p=0.01$, significant low positive relationship, rejecting H_0 . Better instruction correlates with higher skills, though modest r^2 (10.89%) indicates other factors influence development. This aligns with prior TVET research and supports investment in instructional quality, resources, and engagement to strengthen outcomes.

Issues encountered insufficient materials, overcrowding, inadequate space, limited time, and sustaining interest highlight resource and logistical barriers that attenuate potential impact. The proposed Framework for Enhancing Culinary Competence addresses these through needs assessment, capacity building, materials development, parent involvement, practical sessions, safety reinforcement, and monitoring, with defined objectives, strategies, persons involved, budget, timeframe, and expected outcomes.

(1) For school administrators, increase MOOE allocation for ingredients, improve lab space, reduce lab group size, and provide regular TESDA-aligned training; (2) For teachers, adopt varied experiential strategies—peer critique for plating, flavor development activities, kitchen management routines—and maximize low-cost local ingredients; (3) For learners, sustain participation and home practice; (4) For parents and community, support ingredient provision and home reinforcement; (5) For future researchers, expand to larger samples, include performance-based assessments, and conduct longitudinal or intervention studies testing the framework's effectiveness.

Hence, culinary competence develops through the synergy of competent teachers, safe and engaging demonstrations, adequate resources, and active learner participation in authentic contexts. Strengthening these will promote meaningful, skills-based learning preparing learners for productive and responsible participation in society.

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