Self-Efficacy and Culinary Knowledge of Technology and Livelihood Education Students

Diane Rose G. Lagrada*, Arroyo, R.

Department of Home Economics Education and Family Life, Central Mindanao University

***Corresponding Author**

DOI: https://dx.doi.org/10.47772/IJRISS.2025.90400481

Received: 02 May 2024; Accepted: 08 May 2025; Published: 23 May 2025

ABSTRACT

This study explores the relationship between self-efficacy and culinary education knowledge among Grade 9 Technology and Livelihood Education (TLE) students. Using a descriptive-correlational research design, data were collected through a survey questionnaire covering students' demographic profile, self-efficacy, and culinary knowledge. The self-efficacy scale assessed social, emotional, and cognitive aspects, while the culinary knowledge scale measured understanding of nutrition, cooking skills, and dietary habits. Results revealed that most students were within the expected age range, with a higher number of female respondents. Their academic performance was generally strong, though many came from low-income households. Findings also indicated that students had high self-efficacy and an advanced level of culinary knowledge, particularly in cooking skills. Statistical analysis showed a moderate but significant positive relationship between self-efficacy and culinary knowledge. This suggests that students who are more confident in their abilities tend to perform better in culinary education. The study emphasizes the need for hands-on learning experiences, mentorship programs, and confidence-building activities to enhance students' culinary knowledge further.

Keywords: Self-efficacy, culinary education, technology and livelihood education, learning strategies

INTRODUCTION

Technology and Livelihood Education (TLE) is a vital component of the Secondary Education Curriculum in Philippine secondary schools, encompassing various subject areas such as Home Economics. Agri-Fishery Arts. Industrial Arts and Information and Communication Technology. TLE., or CP-TLE for Career Pathways in Technology and Livelihood Education, is designed to equip students with practical skills and knowledge essential for personal development and future employability. The curriculum allocates significant time for CP-TLE, emphasizing hands-on experience in the community to complement classroom learning.

Moreover, the Strengthened Technical and Vocational Education Program (STVEP) was implemented in 2007 to prepare secondary school graduates for vocational and technical skills certification. University preparation, entrepreneurship, and apprenticeship eventually lead to formal employment (Valles, 2012). Relative to this. The current K to 12 curriculum of the Department of Education (DepEd, 2021) also highlights the importance of technical and vocational training among basic education graduates through the offering of Technology and Livelihood Education (TLE).

Students focus on fundamental competencies like mensuration in the exploratory phase of TLE (Grades 7 and 8). technical drafting. tool usage. equipment maintenance. and occupational health and safety. In Grade 9, students select a single course from the exploratory subjects they were introduced to in 7th and 8th grades. At this stage, students can obtain a Certificate of Competency (COC). Moving into Grade 10, students proceed with the Technical Livelihood Education (TLE) specialization course they opted for in the previous year. This pathway enables them to attain a minimum of either NC Level I or II (NC I or II), depending on their specific

TLE course (Official Gazette, 2017; K12 Toolkit, 2012). As students progress through Grades 7 to 12, they enter the specialization phase, delving deeper into specific areas of interest within TLE (Fernando, 2022). This educational approach aims to develop technical skills across various domains to prepare students for diverse career pathways

Within this framework, the cultivation of self-efficacy becomes paramount. Self-efficacy, coined by psychologist Albert Bandura, refers to an individual's belief in their ability to accomplish specific tasks and goals (Garredo, 2023; Shahzad & Naureen, 2017). Within the realm of TLE education, self-efficacy plays a fundamental role in shaping students' attitudes and behaviors towards learning. As students immerse themselves in their chosen TLE specialization, they encounter challenges, overcome obstacles and acquire proficiency in their respective fields. This journey fosters a sense of mastery and confidence in their abilities. laying a solid foundation for their future endeavors (Espiritu, 2020; Zambuk et al., 2019). Through hands-on experiences and real-world applications, students gain technical expertise and develop the resilience and self-assurance necessary to thrive in their chosen vocations (Dimaunahan & Panoy, 2021; Nabuya et al., 2019). Thus, integrating self-efficacy within the TLE curriculum empowers students to navigate the complexities of their academic and professional journeys with competence and conviction.

Given the importance of the experiences that technical livelihood education offers to develop students' self-efficacy, there seems to be a research gap on insight into how self-efficacy cultivated in the early grades evolves in Grade 9 culinary education.

LITERATURE REVIEW

Technology and Livelihood Education in Junior High School

In junior high school. Technical Livelihood Education (TLE) encompasses diverse subjects to equip students with practical skills and knowledge for their future careers. Culinary education plays a significant role in the TLE curriculum, allowing students to learn fundamental cooking techniques. kitchen management. and food safety practices (K12 Toolkit, 2012). Through hands-on experiences and theoretical instruction. Students develop a foundational understanding of culinary arts, including food preparation, presentation, and nutrition. Culinary education in junior high school not only fosters students' interest in cooking but also cultivates essential life skills such as teamwork. creativity. and problem-solving. By integrating culinary education into the TLE curriculum. Junior high schools aim to prepare students for the demands of the culinary industry while promoting holistic development and lifelong learning.

The study of Basal (2022) explored the growing interest in key competencies within educational reform and curriculum innovation. Specifically, it assessed the instructional competencies of Technology and Livelihood Education (TLE) teachers. serving as a foundation for enhancing instructional programs. Employing a mixed-methods research design, the study utilized survey questionnaires to evaluate teachers' instructional competencies and conducted Focus Group Discussions to identify challenges faced in teaching the subject. The study involved thirty-four (34) teachers and three hundred fifty-two (352) student respondents. Data analysis involved descriptive statistics, Pearson Product-Moment Correlation, ANOVA, and t-tests. Findings indicate that a majority of teachers handling the cookery subject were female. possessed master's units. had 0-10 years of service. held Teacher I positions, and were National Certificate II holders. Most students were female Grade 9 enrollees in the cookery program.

Regarding instructional competencies, teachers were rated as "competent" and "highly proficient" in classroom observation ratings. with a significant correlation between instructional competencies and classroom observation ratings. However, instructional competencies showed no significant difference based on teachers' profiles.

The study of Frias (2021) delved into the factors influencing and the level of achievement in learning competencies among Grade 10 students enrolled in the Technology and Livelihood Education (TLE) Program at Agusan del Sur National High School in San Francisco. Agusan del Sur. Research inquiries were addressed, and a hypothesis was tested. The study population consisted of 91 individuals. comprising 79 students and 12 TLE teachers. Data collection employed a validated questionnaire, with subsequent analysis performed, followed

by a focused group discussion (FGD). Mean and standard deviation calculations were utilized to address research inquiries, while hypothesis testing was conducted using analysis of variance at a significance level of 0.05. Results revealed high implementation of goals and objectives. However, there is a slight implementation of tools and equipment factors. Competencies in crop production, refrigeration, and air-conditioning were moderately achieved.

In comparison, those in cookery, electric installation, and maintenance were slightly achieved. Overall, implementing technology and livelihood education factors was moderately carried out, with the attainment of desired learning competencies slightly achieved. No significant relationship was observed between related factors and desired learning competencies at the 0.05 significance level. Recommendations include reviewing training regulations by TLE teachers and school administrators and considering proposed intervention programs.

Similarly, Mayuga (2022) examined students' lifelong learning skills and proficiency levels in Technology and Livelihood Education. focusing particularly on Beauty Care. Cookery. and Information and Communication Technology (ICT). These skills encompass critical thinking, creativity, collaboration, communication, computer literacy, and career and learning self-reliance. Additionally, it evaluated the degree of student progress regarding work attitudes and skills. while also identifying obstacles in meeting TESDA standards. Employing a descriptive research design, the study utilized a researcher-developed questionnaire as the primary data collection instrument. Quantitative data were supplemented by interviews and focus group discussions. The participants included 285 TLE teachers and 135 school administrators from the four divisions in Batangas Province. The findings indicated that students demonstrate a moderate level of proficiency in the six lifelong learning skills across Beauty Care. Cookery. and ICT. They also possess moderate knowledge and competency in these subject areas. The degree of manifestation of lifelong learning skills correlates significantly with students' knowledge. skills. and competencies. Moreover, students display moderate work attitudes and competencies in work skills.

French (2024) examined the correlation between enrollment in a semester-long food skills course featuring an interactive teaching kitchen and dietary habits as well as cooking self-efficacy. Participants were drawn from both course enrollees (intervention group) and the broader student body (comparison group). The study compared pre–post changes in outcomes between these groups using propensity score weighting and mixed effects linear or Poisson regression techniques. Participation in the course was linked with enhanced self-efficacy in cooking as well as increased consumption of fruits. vegetables. and whole grains. Course attendees reported smaller pre–post declines in vegetable consumption compared to non-participants, increased frequency of cooking, and reduced instances of skipping meals. However, no significant changes were observed in fruit or whole grain consumption or in the frequency of eating out. Participating in a semester-long food skills course with a teaching kitchen enhanced self-efficacy. cooking habits. and vegetable consumption among college students.

Nabuya et al. (2019) focused on students' experiences undergoing assessment in the Technical Vocational and Livelihood (TVL) program at the University of Immaculate Conception. The researchers aimed to explore how students perceived and navigated this program and ascertain their limitations. The study aimed to investigate grade 12 students enrolled in these assessments, given their firsthand understanding of the impact and improvement of the skills they are required to acquire. The central issue addressed in this study was how assessments were conducted, whether easy or challenging. can influence student learning. Its purpose was to assess the effectiveness of the assessments and their potential to prepare students for future employment. Ultimately, the study concluded that various factors influence the experiences of TVL students in program assessment.

Researchers also looked into teaching TLE during the pandemic. Ronquillo (2023) examined the experiences of Technology Livelihood Education (TLE) teachers in junior high schools regarding implementing modular distance learning. The aim was to identify areas for improvement in the school's learning continuity plan within the General Luna District. The research evaluated both the advantages and disadvantages of using printed modules for modular learning. aiming to discern effective practices. The research employed a convergent mixed-method approach to explore the challenges and experiences of teachers in modular distance learning. The researcher selected teacher respondents from General Luna District's public secondary schools, chosen due to

their familiarity and proximity. facilitating efficient data collection. The findings suggest that the school administration was considering the departmentalization of teachers to distribute teaching loads according to the secondary education manual. Notably, many teachers handled both Edukasyon sa Pagpapakatao and TLE subjects, highlighting the transparency in load allocation. Despite facing challenges amidst the pandemic, respondents shared their experiences. shedding light on the demanding nature of the situation.

Students' Self-Efficacy

As conceptualized by psychologist Albert Bandura, self-efficacy refers to an individual's belief in their capability to accomplish specific tasks and achieve desired goals. It is a central component of social cognitive theory and plays a fundamental role in human behavior, motivation, and achievement. Self-efficacy beliefs are domain-specific. meaning they vary depending on the task or situation (Garredo, 2023). These beliefs are formed through a complex interplay of personal experiences. social influences. and cognitive appraisal of one's own abilities. Individuals with high self-efficacy perceive challenges as opportunities for growth. persist in the face of obstacles, and are more likely to set ambitious goals and exert effort to attain them.

Dimaunahan and Panoy (2021) explored whether there is a notable association between students' emotional engagement in learning, such as academic motivation and self-efficacy, and their ability to demonstrate technical skills, along with their academic achievements in Exploratory TLE mini-courses. Employing a descriptive-correlational approach, the study utilized a questionnaire for data collection. Results indicated that the majority of junior high school participants demonstrated proficiency at an approaching level in dressmaking/tailoring and beauty care services. Conversely, most respondents exhibited proficiency in bread and pastry as well as production and mechanical drafting. The study also revealed a significant correlation between students' academic motivation and their performance in both bread and pastry. and production and beauty care services mini-courses. Additionally, a positive relationship was found between respondents' self-efficacy and their academic performance across all four TLE mini-courses. These findings suggest the importance of integrating affective goals into teaching TLE mini-courses, warranting recommendations for strengthening such integration.

Alegre (2014) explored the association between academic self-efficacy in another study. self-regulated learning. and academic achievement among first-year university students in the Metropolitan Lima region. A total of 284 students (comprising 138 male and 146 female students) enrolled in a private university in Lima for the 2013-2 academic term were assessed using a non-probability and incidental sampling method. The evaluation utilized the General Academic Self-Efficacy Questionnaire. The formulated hypothesis posited a positive and significant correlation between academic self-efficacy and self-regulated learning. and academic performance. albeit at a low level. A positive, significant, and moderate correlation was also observed between academic self-efficacy and self-regulated learning.

Oleschuk et al. (2023) investigated the correlation between cooking self-efficacy and attitude and two aspects of cooking behavior: cooking frequency and convenience orientation. Drawing upon a cross-sectional survey analysis of 493 adults residing alone in Illinois, USA, the research utilized validated measures for cooking self-efficacy. attitude. frequency. convenience orientation. and demographic characteristics. Hierarchical linear regression models were employed to explore demographic factors explaining the variance in self-efficacy and attitude with specific attention to interactions among gender and food insecurity. and age. Poisson and OLS linear regression models assessed the associations between self-efficacy and attitude, as well as cooking frequency and convenience orientation. The findings revealed a robust yet distinct association between cooking-related self-efficacy, attitude, and cooking frequency and convenience orientation. Generally, individuals experiencing food insecurity exhibited lower self-efficacy compared to those who were food secure. However, food-insecure women demonstrated higher self-efficacy compared to men in similar situations, except for older-adult women, who displayed notably lower efficacy. Regarding cooking attitudes, subtle differences were observed, particularly with food-insecure younger and older women exhibiting more negative attitudes toward cooking than middle-aged women.

On the other hand, the study of Shahzad and Naureen (2017) was undertaken to examine the effects of teacher self-efficacy on the academic success of secondary school students. In pursuit of this objective, sixty secondary

school teachers and one hundred students from Chiltan Town in Quetta city were chosen through random selection. Data collection involved using a teacher self-efficacy questionnaire and a developed test to gauge students' academic achievements. Analysis was carried out using Pearson Correlation and Multiple Regression. The study's outcomes revealed a positive correlation between teacher self-efficacy and students' academic performance. The implications of these findings for pedagogy were discussed, alongside recommendations for future research endeavors.

Bruno (2019) assessed variances in cooking self-efficacy, cooking skills, and cooking knowledge among foster adolescents before and after participating in a cooking education course. Pre-intervention and post-intervention questionnaires were administered to the participants. The course included a lecture supplemented with practical demonstrations and handouts covering food safety, knife skills, kitchen equipment and utensils, and fundamental cooking skills. After the lecture, the adolescents prepared the recipes scheduled for the cooking education course. Cooking self-efficacy, skills, and knowledge were evaluated using dependent t-tests. Results indicated no significant disparities in cooking self-efficacy skills or knowledge before and after the cooking education course. Likewise, there were no notable differences in their ability to complete specific cooking tasks or their perceived difficulty.

Materials and Methods

This study employed the descriptive quantitative research design. It is a research design that systematically collects and analyzes numerical data to describe and summarize characteristics, behaviors, or phenomena within a specific population or sample. The descriptive quantitative approach aimed to comprehensively understand the subject under investigation without manipulating variables or establishing causal relationships. The present study involved grade 9 TLE students whose self-efficacy and culinary knowledge skills were investigated. Five sections of grade 9 classes were involved in the study, resulting to 141 respondents.

This study employed a survey questionnaire that was adopted from two authors. The questionnaire contained three parts. The first part was for the demographic profile of the students, where the participants wrote information regarding their age. gender. academic performance. and family income. The academic performance refers to the student's weighted average for the third grading period. Regarding family income, the students checked the categories of income provided in the questionnaire. The second part of the questionnaire is a 4-point Likert scale, which contains statements on self-efficacy in terms of social. emotional. and cognitive components. This part was adapted from the study of Gaumer et al. (2018), the self-efficacy formative questionnaire. The third part is another Likert scale containing statements about culinary knowledge skills adapted from Marconi et al.'s study (2023). The statements revolved around the components of nutritional knowledge. cooking skills and dietary habits.

RESULTS AND DISCUSSION

Table 1 presents the respondents' demographic profile regarding their age. The data indicates that the predominant age group among Grade 9 TLE students is 14, with very few students aged 13, 16, or 17. The age distribution suggests that the program primarily attracts students in the typical age range for Grade 9, with a noticeable concentration at 14 years old. The absence of students who are 17 years old may indicate that this age cohort is less represented or that students of this age may have already progressed beyond Grade 9.
Table 1. Demographic profile of the TLE students in terms of age

Age	Frequency	Percentage
13 years old	2	1.42
14 years old	78	55.32
15 years old	50	35.46
16 years old	7	4.96

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue IV April 2025

17 years old	2	1.42
Non-response	2	1.42
Total	141	100

The result suggests a trend in the educational system where 14 is the most common age for students in this grade level, potentially reflecting enrolment patterns. The second largest group comprises 15-year-olds, indicating a strong representation of mid-teen students, typical for Grade 9. Conversely, there are relatively few students aged 16 (4.96%) or 13 (1.42%). suggesting that younger and slightly older students are less common. likely due to academic progression or retention policies. Additionally, there are two non-responses regarding age. accounting for a small percentage of the total respondents (1.42%).

Conversely, Table 2 presents the students' demographic profile regarding their gender. The gender distribution indicates a clear female majority in the Grade 9 TLE cohort, with 63.83% of students identifying as female compared to 34.75% male. The two non-responses constitute a negligible percentage. This gender imbalance can inform educational strategies, curriculum design, and engagement approaches, particularly if the program aims to support a more equitable learning environment for all genders.

Table 2. Profile of the Grade 9 TLE students in terms of gender

Gender	Frequency	Percentage
Male	49	34.75
Female	90	63.83
Non-response	2	1.42
Total	**141**	**100**

The results align with the UNESCO (2013) report on Technical and Vocational Education and Training (TVET), UNESCO-UNEVOC, which noted that female students tend to dominate certain TVET tracks, especially home economics, dressmaking, caregiving, and ICT. This trend is often linked to societal norms and gendered expectations about appropriate roles for men and women.

Meanwhile, Table 3 presents the students' demographic profile regarding academic performance in TLE for one quarter. The data in Table 3 reveals that most Grade 9 TLE students performed well during the first quarter, with 91.49% (129 out of 141) submitting their grades. A significant portion, 38.30%, fell within the Very Satisfactory range (85–89), followed by 29.08% in the Outstanding category (90–100), indicating a strong academic performance overall. Meanwhile, 22.70% achieved Satisfactory results (80–84), and only a small number, 8.51%, were in the Fairly Satisfactory range (75–79). Notably, no students were recorded as having grades below 75, which means all who submitted their grades met the minimum academic expectations. The data suggests that most students perform within or above expected standards, reflecting positively on their engagement and comprehension in TLE for the first quarter.

Table 3. Profile of the Grade 9 TLE students in terms of Academic Performance in the First (1st) Quarter

Grade Scale	Qualitative Description	Frequency	Percentage
90-100	Outstanding	41	29.08%
85-89	Very Satisfactory	54	38.30%
80–84	Satisfactory	32	22.70%
75–79	Fairly Satisfactory	12	8.51%

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue IV April 2025

Below 75	Did Not Meet Expectations	11	7.80%
Total		150	100%

The strong academic performance of the Grade 9 students in TLE, with many falling under the *Very Satisfactory* and *Outstanding* categories, reflects the effectiveness of teaching approaches and the relevance of the subject to students' daily lives. This suggests that the competencies outlined by the Department of Education (DepEd), particularly those in the Most Essential Learning Competencies (MELCs), are successfully achieved. For instance, learners excelling in Home Economics demonstrate practical skills like cooking, budgeting, or basic home management—essential life skills that align with DepEd's goal of producing functionally literate and life-ready graduates (DepEd Order No. 12, s. 2020). The results also support findings from Alsong and Alsong (2019), who noted that contextualized and hands-on teaching in TLE improves student performance and engagement, especially when lessons are connected to real-life applications. Similarly, Candilasa (2025) emphasized that learners perform better when given access to relevant materials and proper guidance in skill-based subjects. On the other hand, Jimenez (2020) argued that while performance in TLE is generally satisfactory, the lack of equipment and materials in some public schools can hinder skill development. Thus, while the results in this study are encouraging, they may also reflect access to resources and consistent teaching quality. These findings highlight the importance of supporting TLE through adequate resources, localized instruction, and performance-based assessments to sustain and improve student outcomes.

Finally, Table 4 presents the family income distribution of Grade 9 TLE students, and it shows a clear trend, where most students come from low-income households. Over half of them (50.35%) reported earning less than ₱5,000 monthly, while 27.66% fall within the ₱6,000 to ₱10,000 range. This means that a large portion of the class, around three-fourths, belong to families with limited financial means. Only a few students reported a household income above ₱26,000 (4.26%), and the rest of the income brackets had smaller numbers. There were also a few students (3.55%) who did not disclose their income level.

Table 4. Profile of the Grade 9 TLE students in terms of family income

Family Income	Frequency	Percentage
More than 26.000	6	4.26
21.000-25.000	4	2.84
16.000-20.000	6	4.26
11.000-15.000	10	7.09
6.000-10.000	39	27.66
Less than 5.000	71	50.35
Non-response	5	3.55
Total	141	100

The pattern reflects that many students may face financial challenges affecting their education. For example, those from lower-income families may struggle to buy materials for TLE projects, such as cookery ingredients or industrial arts tools. These limitations can influence how well they can participate in class activities. The data suggests that schools should consider providing more support to ensure all students have equal learning opportunities, especially in a subject like TLE that often involves practical, hands-on work. This supports DepEd's goal of making education accessible and inclusive for all, especially for learners from disadvantaged backgrounds. It also highlights the value of involving parents and the community in helping bridge resource gaps that these students may face.

Students' Level of Self-Efficacy

Table 5 presents the students' level of self-efficacy in terms of the social aspect. Based on the results, students

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue IV April 2025

show a generally high level of social participation, with the highest mean score of 3.30 given to the statement about active involvement and cooperation in group activities. This suggests that learners are comfortable working with others and value teamwork in classroom settings. In the study context, this is seen during collaborative performance tasks, such as group cooking demonstrations in TLE, where students divide roles to prepare ingredients, cook meals, and present outputs as a team. Additionally, in the ICT component of TLE, students usually work together to design simple multimedia presentations or troubleshoot fundamental hardware issues.

Table 5. TLE Students' Level of Self-Efficacy in Terms of Social Aspect

Indicators	Mean	Standard Deviation	Qualitative Description
I actively participate in group activities and collaborate effectively with classmates to achieve common goals.	3.30	0.52	High Self-Efficacy
I cultivate a supportive network of friends, family, and mentors who encourage and believe in my abilities.	3.23	0.50	High Self-Efficacy
I demonstrate empathy and respect towards others, considering their perspectives and feelings in social interactions.	3.19	0.48	High Self-Efficacy
I demonstrate leadership skills by taking on roles within group projects or extracurricular activities and inspiring others to contribute their best efforts.	3.06	0.55	High Self-Efficacy
Total	**3.20**	**0.51**	**High Self-Efficacy**

Legend

Rating	Scale	Descriptive Rating	Qualitative Interpretation
4	3.51 – 4.00	Strongly Agree	Very High Self-Efficacy
3	2.51 – 3.50	Agree	High Self-Efficacy
2	1.51 – 2.50	Disagree	Low Self-Efficacy
1	0 – 1.50	Strongly Disagree	Very Self-Efficacy

This result mirrors the findings of Reguindin (2023), who noted that Filipino students often favor group cohesion and harmonious relationships over standing out individually, which may explain the reluctance toward leadership roles. More recently, a study by Merza et al. (2022) on student leadership and community participation in Northern Negros Occidental revealed that young Filipino leaders often experience self-doubt and low confidence, especially when tasked with leading initiatives—an issue that closely aligns with the current findings. Additionally, the research of Andres et al. (2022) on civic engagement among student leaders emphasized the need for structured leadership development, showing that values formation, extracurricular involvement, and purposeful engagement play key roles in building leadership capacity.

On the other hand, Table 6 presents the students' level of self-efficacy in terms of the emotional aspect, which involves their ability to understand, manage, and respond to their own emotions in various situations.

Table 6. TLE Students' Level of Self-Efficacy in Terms of Emotional Aspect

Indicators	Mean	Standard Deviation	Qualitative Description
I practice self-compassion, treating myself with kindness and understanding during difficult times.	3.26	0.49	High Self-Efficacy

I think that no matter who you are, you can significantly change your level of talent.	3.22	0.50	High Self-Efficacy
If I practiced every day, I could develop just about any skill.	3.18	0.48	High Self-Efficacy
Once I've decided to accomplish something that's important to me, I keep trying to accomplish it, even if it is harder than I thought.	3.16	0.52	High Self-Efficacy
I maintain a positive attitude towards learning and approach challenges with enthusiasm and determination.	3.16	0.50	High Self-Efficacy
I engage in self-care activities that promote emotional well-being, such as exercise, hobbies, or spending time with loved ones.	3.12	0.47	High Self-Efficacy
When I'm struggling to accomplish something difficult, I focus on my progress instead of feeling discouraged.	3.09	0.53	High Self-Efficacy
I am able to cope with criticism constructively, using feedback as an opportunity for growth rather than feeling discouraged.	2.90	0.55	High Self-Efficacy
Total	**3.14**	**0.51**	**High Self-Efficacy**

Legend

Rating	Scale	Descriptive Rating	Qualitative Interpretation
4	3.51 – 4.00	Strongly Agree	Very High Self-Efficacy
3	2.51 – 3.50	Agree	High Self-Efficacy
2	1.51 – 2.50	Disagree	Low Self-Efficacy
1	0 – 1.50	Strongly Disagree	Very Self-Efficacy

The table presents insights into students' emotional self-efficacy, showing an overall mean of 3.14 and a standard deviation of 0.51, which are both interpreted as High Emotional Participation. Among the items, the highest rating was given to the statement, "*I practice self-compassion, treating myself with kindness and understanding during difficult times,*" with a mean of 3.26. This indicates that students can generally show patience and understanding toward themselves, especially when faced with setbacks or pressure. This quality is essential in helping learners manage stress and stay motivated. On the other hand, the lowest score (2.90) was recorded for the statement on how students deal with criticism. Although it still falls under the high category, some students may find it challenging to accept feedback without feeling discouraged. This could affect how they process mistakes or react to corrective comments in class. Overall, the results show that students have a good level of emotional self-awareness and regulation, but there is a need to help them develop a healthier response to criticism. Encouraging open dialogue, reflective practices, and feedback activities in the classroom can strengthen this aspect of emotional growth.

The result supports the findings of Angelo et al. (2023), who emphasized that Filipino students with strong emotional self-awareness and self-compassion are more likely to stay motivated and cope well with academic challenges. Their study highlighted that learners who practice emotional regulation tend to perform better academically and show greater persistence in tasks. Similarly, the lower score related to managing criticism constructively aligns with the findings of Rivera and Agustin (2020), who observed that many students in Philippine schools still find it difficult to receive feedback positively, often viewing it as a threat to their self-esteem rather than an opportunity for growth. These findings strengthen the implication that while students

already show high emotional engagement, there is a clear need for targeted interventions, such as social-emotional learning (SEL) activities, to help them better process feedback and strengthen their emotional resilience.

Conversely, Table 7 reflects the students' level of self-efficacy in terms of the cognitive aspect. The data reflect a high level of cognitive self-efficacy among students, with an overall mean of 3.17 and a standard deviation of 0.49, indicating consistent responses. The highest mean score, 3.29, was observed in the statement "*I believe hard work pays off*," suggesting that students strongly value effort and persistence in achieving success. In contrast, the lowest score, 2.85, was given to "*I persist in the face of setbacks and view them as temporary obstacles,"* pointing to a potential improvement in resilience when facing academic challenges. Although all indicators fall under "High Self-Efficacy," the variation highlights the need to reinforce students' ability to stay motivated and focused despite difficulties. Encouraging a growth mindset and providing supportive feedback may help strengthen this area and enhance students' overall academic confidence.

Table 7. TLE Students' Level of Self-Efficacy in Terms of Cognitive Aspect

Indicators	Mean	Standard Deviation	Qualitative Description
I believe hard work pays off.	3.29	47	High Self-Efficacy
I am confident that I will achieve the goals that I set for myself	3.26	48	High Self-Efficacy
My ability grows with effort.	3.25	46	High Self-Efficacy
I can learn what is being taught in class this year.	3.23	49	High Self-Efficacy
I believe that the brain can be developed like a muscle.	3.23	48	High Self-Efficacy
I set specific, achievable learning goals for myself and regularly monitor my progress towards them.	3.14	50	High Self-Efficacy
I actively seek out challenging tasks and view them as opportunities for growth.	3.12	51	High Self-Efficacy
I persist in the face of setbacks and view them as temporary obstacles.	2.85	55	High Self-Efficacy
Total	**3.17**	**0.49**	High Self-Efficacy

Legend

Rating	Scale	Descriptive Rating	Qualitative Interpretation
4	3.51 – 4.00	Strongly Agree	Very High Self-Efficacy
3	2.51 – 3.50	Agree	High Self-Efficacy
2	1.51 – 2.50	Disagree	Low Self-Efficacy
1	0 – 1.50	Strongly Disagree	Very Self-Efficacy

The results of this study align with recent local research that highlights how students' beliefs about effort and ability affect their learning. For instance, Bedoria and Madrigal (2022) found that many Filipino students who value hard work tend to participate more actively in school tasks and perform better academically. This supports students' high rating for the belief that effort leads to success. On the other hand, the lower score related to persistence in the face of setbacks reflects what Valdez and Sy (2023) and Hernandez and Jimenez (2023) also observed in their study about some learners easily losing motivation when they experience failure, especially

when they do not receive enough guidance or encouragement. They emphasized the importance of helping students develop a growth mindset by teaching them that challenges and mistakes are part of learning. These findings suggest that while students believe in their abilities, schools still need to create spaces where students feel safe to fail, try again, and build confidence in their capacity to overcome obstacles.

Students' Level of Culinary Knowledge

Table 8 summarizes the TLE students' level of culinary knowledge in terms of nutritional knowledge, cooking skills, and dietary habits. The indicators in each dimension involve their understanding of basic cooking techniques, food safety and sanitation, kitchen tools and equipment, meal planning, and preparation methods.

Table 8. Students' Level of Culinary Knowledge

Dimensions	Mean	Standard Deviation	Qualitative Description
Nutritional Knowledge	3.29	0.47	Advanced
Cooking Skills	3.36	0.42	Advanced
Dietary Habits	3.09	0.51	Advanced
Total	**3.25**	**0.47**	**Advanced**

Legend

Rating	Scale	Descriptive Rating	Qualitative Interpretation
4	3.51 – 4.00	Very true of me	Expert
3	2.51 – 3.50	Sometimes true of me	Advanced
2	1.51 – 2.50	Rarely true of me	Intermediate
1	0 – 1.50	Never true of me	Novice

Correlation Analysis Between TLE Students' Self-Efficacy and Culinary Education Knowledge

Table 9 is the correlation table that shows the statistical analysis of the relationship between the TLE students' level of self-efficacy and culinary education knowledge.

Table 9. Correlation Analysis of Students' Self-Efficacy and Culinary Education Knowledge

Variable	Pearson r	t-value	p-value	Remarks
Self-Efficacy -Culinary Knowledge	0.226	2.71	0.007	Significant

Model Summary:

$R = 0.502$
$R^2 = 0.252$
$F = XX.XX$ (if applicable)
$p = 0.000$

Table 9 presents the correlation analysis between TLE students' self-efficacy and culinary education knowledge, revealing a moderate positive relationship with a Pearson correlation coefficient of 0.226. The t-value of 2.71

and p-value of 0.007 indicate that this correlation is statistically significant, suggesting that students with higher self-efficacy tend to have better culinary knowledge. The model summary further supports this relationship, showing an R-value of 0.502, which signifies a moderate correlation between the variables in the study. Additionally, the R^2 value of 0.252 suggests that approximately 25.2% of the variance in students' culinary knowledge can be explained by their level of self-efficacy. With a highly significant p-value (0.000), the results indicate that self-efficacy plays a crucial role in shaping students' learning outcomes in culinary education, emphasizing the need for programs that strengthen students' confidence in their skills.

The results suggest that self-efficacy plays a vital role in shaping students' learning experiences in culinary education. This highlights the need for teaching methods that actively boost students' confidence, such as hands-on cooking activities, peer collaboration, and mentorship programs, as explained in the study of Garredo (2023). Since the correlation is moderate, it indicates that while self-efficacy contributes to culinary knowledge, other factors like prior experience, resource availability, and motivation also play a role. With only 25.2% of the variance explained, future research could examine additional influences such as learning environments, teacher guidance, and practical training opportunities. Incorporating strategies like goal-setting, constructive feedback, and real-world application of skills, educators can further enhance students' culinary competencies (Oleschuk et al., 2023), helping them develop both their technical expertise and confidence in their abilities, which are essential for success in the field.

CONCLUSIONS

Based on the findings of the study, these are the significant conclusions that are drawn:

The students' demographic profile shows that most are within the expected age range, with more female students enrolled in the TLE program. Their academic performance is generally strong, though many come from low-income households, which could affect their access to resources. These findings emphasize the importance of creating an inclusive learning environment that supports all students, regardless of background, to ensure equal opportunities for success.

The students showed strong self-efficacy, especially in teamwork, emotional resilience, and goal-setting. However, some struggle with handling criticism and staying motivated during challenges. Providing more support through encouragement, feedback, and hands-on learning can help boost their confidence and overall growth in culinary education.

The students demonstrated advanced culinary knowledge, showing confidence in nutritional concepts, cooking skills, and dietary habits. However, continuous practice and exposure to real-life applications can further enhance their expertise and prepare them for future culinary opportunities.

The study found a significant positive relationship between self-efficacy and culinary knowledge, indicating that students who are more confident in their abilities tend to perform better in culinary education. This highlights the importance of further fostering self-efficacy through hands-on learning, mentorship, and encouragement to enhance students' culinary skills and overall learning outcomes.

REFERENCES

1. Alegre, A. (2014). Academic self-efficacy, self-regulated learning and academic performance in first-year university students. Propósitos y Representations, 2(1), 79-120. doi: http://dx.doi.org/10.20511/pyr2014.v2n1.54
2. Along, T. & Along, L. (2019). Facilitating Learning and Academic Performance of Students in TLE under K to 12 Curriculums. International Journal of Innovative Science and Research Technology, 4(11), 1-20.
3. Angelo, M., Carlos, R., Robles, C., Noren, P., Paraguay, J. C., & Jhoselle Tus. (2023). Self-Efficacy and academic resilience among grade 12 students in a private school: A correlational study. Zenodo

(CERN European Organization for Nuclear Research), 11(2). https://doi.org/10.5281/zenodo.8185748

4. Barcelona, K. E. P., Daling, B. A. J., Doria, P., Balangiao, S. J., Mailes, M. J., Chiang, P. M., & Ubatay, D. (2023). Challenges and Opportunities of TLE Teachers in Philippine Public Schools: An Inquiry. British Journal of Multidisciplinary and Advanced Studies, 4(4), 44–60. https://doi.org/10.37745/bjmas.2022.0247
5. Basal, D. (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; doi:.10.47119/IJRP100961320222948
6. Bedoria, C. J. S., & Madrigal, D. V. (2022). Sense of coherence, self-compassion, and mental well-being of senior high school students: An explanatory-sequential inquiry. International Journal of Research Publications, 3(5), 1–15.
7. Candilasa, J. (2025). E-teacher professional development course in oral communication for senior high school English teachers. Journal of Harbin Engineering University, 46(1), 1-9.
8. Department of Education (2020). DepEd Order No. 12, s. 2020: Adoption of the Most Essential Learning Competencies (MELCs).
9. Dimaunahan, J.M. & Panoy, J.D. (2021). Academic motivation and self-efficacy in technical skills are correlates to academic performance. International Journal of Educational Management and Development Studies, 2(4), 70 - 89. DOI: https://doi.org/10.53378/352077
10. French, C., Gomez-Lara, A., Hee, A., Shankar, A., Song, N., Campos, M., McCoin, M., Matias, S.L. (2024). Impact of a food skills course with a teaching kitchen on dietary and cooking self-efficacy and behaviors among college students. Nutrients, 16, 585. https://doi.org/10.3390/nu16050585
11. Frias, D. (2021). Related factors of technology and livelihood education program and learning competencies of junior high school. International Journal of Academic Multidisciplinary Research (IJAMR), 5(3), 125-127
12. Garredo, G. L. (2023, July). Bandura's self-efficacy theory of motivation in psychology. Simply Psychology. Retrieved from https://www.simplypsychology.org/self-efficacy.html
13. Hernandez, A. B., & Jimenez, M. P. (2023). Students' perceptions of feedback in reducing speaking anxiety: A mixed-methods study. Cognizance Journal of Education, 5(1), 123–138.
14. Jimenez, E. C. (2020). Contextualized E-Learning Resource: A Tool for Stronger Academic Platform. International Journal of Case Studies in Business, IT, and Education (IJCSBE), 4(2), 110-116. DOI: http://doi.org/10.5281/zenodo.4018344.
15. Labor, P. D. P. & Gastardo-Conaco, M. C. C. (2021). Viewing your kapwa: Elaboration of a social-relational construct through language. Philippine Social Science Journal, 4(4), 10-19. https://doi.org/10.52006/main.v4i4.418
16. Mayuga, G. P. (2022). Equipping junior high school students with lifelong learning skills in technology and livelihood education. International Journal of Research in Engineering, Science and Management, 5(1), 24-35.
17. Merza, C. A., Baga, P. C. N., Bautista, P. S., Bulatao, A. R. Y., & Pangngay, J. J. (2022). Pakikipagkapwa: Pathways in developing civic engagement among student leaders. Philippine Social Science Journal, 5(2), 61–72. https://doi.org/10.52006/main.v5i2.487
18. Nabuya, S., Demerey, R., Villarmia, R., Navarez, J., Cupat, N.C. (2019). Students' experiences on technical vocational and livelihood program assessment in senior high school. Educational Technology, 13(6), 123-147.
19. Oleschuk, M., Young Choi, H., Ellison, B., Prescott, M. (2023). Associations between cooking self-efficacy, attitude, and behaviors among people living alone: A cross-sectional survey analysis. Appetite, 189(1), 79–95. https://doi.org/10.1016/j.appet.2023.106999
20. Reguindin, J. C. (2023). Lived Experiences of Filipino Young Leaders on Participation in Community Development in a Municipality in Northern Negros Occidental. The Quest: Journal of Multidisciplinary Research and Development, 2(1). https://doi.org/10.60008/thequest.v2i1.77
21. Rivera, M. R. L.., & Agustin, D. M. (2020). Self-efficacy of junior high school students. Ascendens Asia Singapore – Union Christian College Philippines Journal of Multidisciplinary Research Abstracts, 3(1).
22. Ronquillo, R. (2023). Challenges encountered by junior high school tle teachers on modular distance

learning: Basis for enhancement in the school's learning continuity plan in General Luna District. Psychology and Education: A Multidisciplinary Journal, 11(4): 322-334

23. Shahzad, K. & Naureen, S. (2017). Impact of teacher self-efficacy on secondary school students' academic achievement. Journal of Education and Educational Development, 4(1), 48–72.
24. Valdez, J. P., & Sy, T. S. (2023). Self-efficacy and academic resilience among Grade 12 students in the Philippines. Philippine Social Science Journal, 6(1), 45–58.