

Level of Mastery in Cookery Skills among Grade 10 Students at Puro National High School: Basis for Instructional Enhancement

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Abstract

This study assessed the mastery of cookery skills among Grade 10 students of Puro National High School in terms of preparation, cooking, plating, and sanitation, identified the challenges they encountered, and determined whether mastery differed according to demographic characteristics. The study was anchored on Bloom's Taxonomy of Educational Objectives, Thorndike's principles of learning through exercise and practice, and Kolb's Experiential Learning Theory, with an Input-Process-Output approach as its conceptual framework. A descriptive-quantitative research design was employed involving 30 Grade 10 cookery students selected through convenience sampling. Data were collected using a researcher-made and validated questionnaire and analyzed using frequency, percentage, weighted mean, and one-way Analysis of Variance. Findings showed strong mastery in preparation and sanitation, while cooking and plating demonstrated satisfactory mastery. Sanitation emerged as the strongest area, particularly in handwashing, cleanliness, equipment sanitation, storage, and personal safety. Students encountered challenges in decorating finished products, time management, independent task performance, time and temperature control, cooking methods, measurement, and food presentation. No statistically significant difference in cookery mastery was found across the demographic groups examined. The study recommends additional workshops, demonstrations, hands-on activities, timed exercises, and individual tasks to strengthen identified areas while sustaining sanitation and hygiene practices. The study supports SDG 4 - Quality Education, SDG 3 - Good Health and Well-Being, and SDG 8 - Decent Work and Economic Growth through practical skills development, food safety, and preparation for future employment and livelihood opportunities. Its sustainability impact lies in promoting responsive TLE instruction, effective use of learning resources, sustained food safety practices, and practical competencies applicable to education, employment, entrepreneurship, and community life.

Keywords: Cookery Skills, Demographic Profile, Food Safety, Grade 10 Students, Mastery, Plating, Preparation, Sanitation, Technical-Vocational Education

1. Introduction

Technology and Livelihood Education (TLE) is an applied component of Philippine basic education intended to develop practical knowledge, technical competence, work values, and skills relevant to further training, employment, entrepreneurship, and everyday life. Cookery under the Home Economics strand provides learners with opportunities to acquire competencies in food preparation, cooking techniques, presentation, food safety, sanitation, and responsible use of kitchen resources. The Department of Education's Cookery NC II Curriculum Guide identifies competencies for Grades 9 to 12, while the more recent MATATAG EPP/TLE Curriculum Guide reinforces competency-based, practical, and contextualized learning across TLE. Current technical-vocational

policy also emphasizes competency standards that connect education with occupational preparation and assessment (Department of Education [DepEd], 2016, 2023; Technical Education and Skills Development Authority [TESDA], 2024). Within this context, mastery cannot be determined solely from students' participation in practical activities. Learners must be able to demonstrate competencies consistently and appropriately under performance conditions. Recent research on cooking education emphasizes hands-on learning, structured assessment, food literacy, safety, and opportunities for repeated practice as important components of skill development (van der Horst et al., 2024; Vaughan et al., 2024; Bessette et al., 2026). Accordingly, the present study assesses Grade 10 students' mastery of preparation, cooking, plating, and sanitation at Puro National High School and identifies challenges that may affect the acquisition and performance of these competencies.

Cookery education combines conceptual knowledge with practical performance. The DepEd Cookery NC II Curriculum Guide includes competencies related to the appropriate use and maintenance of kitchen tools and equipment, occupational health and safety, food preparation, cooking, presentation, storage, and sanitation (DepEd, 2016). The MATATAG EPP/TLE Curriculum Guide further reflects the continuing emphasis on practical competencies, contextualized learning, productivity, and preparation for future occupational pathways (DepEd, 2023). TESDA's amended regulations for Food Production (Professional Cookery) NC II similarly maintain a competency-based orientation in technical-vocational preparation (TESDA, 2024). This competency-based orientation makes direct assessment of learner performance important. Cookery requires students to integrate knowledge, procedural accuracy, food safety, appropriate tool use, time management, and presentation. Research on high school cooking education demonstrates that structured experiential instruction can improve cooking and food skills, although improved practical competence does not automatically result in changes in all dietary behaviors (LeBlanc et al., 2022). Thus, assessment should distinguish actual cookery mastery from participation or general academic achievement. For Grade 10 students, assessing mastery is particularly relevant because practical competencies are expected to develop through repeated application rather than theoretical instruction alone. Philippine research has likewise emphasized the importance of TLE competencies for developing work-related and lifelong skills among junior high school learners. Limitations in facilities, tools, ingredients, and laboratory space can restrict practical engagement and performance opportunities, making the learning environment an important consideration in evaluating mastery (Cabutihan et al., 2024).

Recent literature supports treating cooking competence as multidimensional rather than as a single skill. A systematic review by van der Horst et al. (2024) found that children's cooking interventions commonly assess outcomes such as cooking skills, food acceptance, and dietary behaviors, while emphasizing considerable variation in intervention design and evaluation. Vaughan et al. (2024) similarly concluded that school-based cooking classes can contribute to cooking skills and food literacy, although outcomes vary across programs and measures. More recent evidence from Bessette et al. (2026) indicates that cooking programs for children and adolescents can improve cooking skills and self-efficacy but also highlights the continuing need for stronger assessment designs, validated measures, larger samples, and longer-term evaluation. Experiential and hands-on instruction consistently emerges as an important approach to developing practical skills. LeBlanc et al. (2022) found that participation in an experiential high school cooking course produced greater improvements in cooking and food skills than comparison instruction. Dean et al. (2022) likewise reported improvement in perceived cooking competence following a theory-driven cooking intervention. Labbé et al. (2023) found improvements in cooking skills and food knowledge through a school-based culinary program, while Sullivan et al. (2026) reported improvements in several food literacy and food safety behaviors following a food literacy program for high school students. Together, these studies indicate that practical, structured, and engaging learning experiences can strengthen learners' competencies, although outcomes depend on program design and the dimensions being assessed. Food literacy research provides additional support for integrating knowledge, practical ability, confidence, and safe food preparation. Ruiz et al. (2021) developed and pilot-tested an experiential food literacy curriculum for high school-aged adolescents that incorporated cooking, agriculture, nutrition, and applied learning activities. Policastro et al. (2023) further demonstrated that culinary lessons can contribute to culinary literacy and cooking self-efficacy. These findings support instructional approaches that allow learners to understand procedures while repeatedly applying them in authentic or simulated food preparation situations. Sanitation and food safety are particularly important because technical proficiency in cooking must be accompanied by safe handling practices. In the Philippine context, Limon (2022) demonstrated that structured food safety lessons significantly improved and supported the retention of food safety knowledge and skills among junior high school students. This reinforces the inclusion of sanitation as a distinct domain of cookery mastery rather than treating it as an incidental component of food preparation. Recent Philippine studies also emphasize instructional resources and delivery conditions. Cabrerós (2023) found that supplementary video-based learning materials could support Grade 10 cookery competencies and address areas in which learners had not yet reached stronger levels of mastery. Arrisgado et al. (2024) examined technology-aided and demonstration methods in cookery instruction, highlighting technology as a possible support for practical teaching. Javier and Java (2025) reported improved cognitive and psychomotor outcomes among learners exposed to instructional video-mediated cookery instruction. These studies indicate that multimedia and supplementary materials can reinforce practical teaching, particularly when combined with direct instruction and performance activities. Experiential learning remains

especially relevant to Grade 10 TLE Cookery. Ramirez (2025) found that experiential learning dimensions, particularly concrete experience and reflective observation, were associated with the development of work-related soft skills among Grade 10 cookery learners. However, practical instruction depends partly on the conditions under which students practice. Cabutihan et al. (2024) found that insufficient equipment, ingredients, and laboratory space affected engagement and practical activities in TLE laboratories. At a broader level, Soliman and Gabutin (2025) reported that community-based partnerships could strengthen food literacy and cooking competence among Filipino secondary students, suggesting that the development of practical competencies can also benefit from support beyond the immediate classroom. These findings collectively indicate that cookery mastery develops through an interaction of learner knowledge, repeated practice, instructional strategies, assessment practices, resources, and opportunities to perform practical tasks. Preparation, cooking, plating, and sanitation should therefore be assessed as related but distinguishable skill domains so that specific areas of strength and difficulty can be identified.

At the global level, recent systematic reviews show growing recognition of cooking education as a means of strengthening practical competence, food literacy, confidence, and safe food-related behaviors among children and adolescents. However, variability in assessment approaches remains a concern. Reviews continue to recommend stronger outcome measurement, validated tools, and clearer evaluation of actual performance rather than relying primarily on self-reported ability (van der Horst et al., 2024; Vaughan et al., 2024; Bessette et al., 2026). In the Philippines, TLE provides the curricular setting for practical and technical skill development. The Cookery NC II Curriculum Guide includes practical competencies that require learners to demonstrate food preparation, cooking, presentation, sanitation, and occupational safety procedures (DepEd, 2016). More recent Philippine studies indicate that the effectiveness of cookery instruction may depend on access to facilities and equipment, instructional materials, technology, experiential activities, and teacher-guided practice (Cabreros, 2023; Cabutihan et al., 2024; Arrisgado et al., 2024; Javier & Java, 2025; Ramirez, 2025). The present study is situated at Puro National High School in Barangay Puro, Aroroy, Masbate, under the Aroroy West District. The school implements the prescribed basic education curriculum and serves junior and senior high school learners. The investigation specifically concerns Grade 10 students enrolled in Cookery during School Year 2025-2026. Because the study is school-specific, the findings are intended to describe mastery and challenges within this particular educational setting rather than to represent all Grade 10 cookery learners in the Philippines.

The study is anchored on Bloom's Taxonomy of Educational Objectives, Thorndike's principles of learning through exercise and practice, and Kolb's Experiential Learning Theory. These older references are retained because they represent original theories and foundational works and therefore qualify as exceptions to the five-year reference policy. Bloom et al. (1956) provide a foundational classification of cognitive educational objectives. Within the present study, this perspective is relevant to students' understanding of concepts, principles, procedures, and decisions involved in cookery. Practical mastery requires learners not only to recall information but also to apply knowledge appropriately during food preparation and cooking activities. Thorndike (1913) explains learning partly through connections strengthened by exercise and repeated practice. This principle is directly relevant to cookery because proficiency in measuring, preparation, handling equipment, applying cooking techniques, plating, and sanitation develops through repeated and corrective performance rather than through conceptual instruction alone. Kolb's Experiential Learning Theory proposes a learning cycle involving concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb, 1984). Cookery closely reflects this process because students perform practical activities, observe and evaluate their outcomes, connect experience with technical principles, and modify subsequent performance. Recent Philippine evidence also supports the continuing relevance of experiential learning in Grade 10 TLE Cookery (Ramirez, 2025). Taken together, these perspectives explain mastery as an interaction of understanding, repeated practice, experience, reflection, and improved performance. The original theoretical framework of the study therefore remains appropriate, while its explanation is strengthened by recent empirical evidence on experiential cookery instruction. Conceptually, the study follows an Input-Process-Output approach. Inputs include the students' demographic characteristics of age, sex, and prior exposure to cooking; their mastery in preparation, cooking, plating, and sanitation; and the challenges they encounter. The process consists of data gathering, assessment, analysis, and interpretation, while the intended output is empirical evidence on students' mastery and identified needs that may provide a basis for instructional enhancement.

Despite the increasing literature on cooking interventions, food literacy, technology-supported teaching, food safety, and experiential learning, important assessment gaps remain. Recent systematic reviews indicate substantial differences in how cooking competence is conceptualized and measured and recommend stronger, more direct, and better validated approaches to evaluating skills (van der Horst et al., 2024; Vaughan et al., 2024; Bessette et al., 2026). Much recent Philippine research has focused on instructional materials, technology-assisted instruction, experiential strategies, resource constraints, and food literacy interventions rather than on simultaneously assessing preparation, cooking, plating, and sanitation among Grade 10 learners within a specific school setting (Cabreros, 2023; Arrisgado et al., 2024; Cabutihan et al., 2024; Ramirez, 2025; Javier & Java, 2025). The reviewed literature therefore supports the need for localized evidence on students' actual mastery and

the conditions that may constrain performance. In particular, limited evidence comprehensively examines the four domains of preparation, cooking, plating, and sanitation among Grade 10 students within a single school context. Addressing these domains together may provide a clearer picture of specific competencies that have been mastered and those requiring additional instructional attention. Accordingly, the study determines the profile of Grade 10 students in terms of age, sex, and prior exposure to cooking; assesses their mastery of preparation, cooking, plating, and sanitation; identifies the challenges they experience in developing these skills; and examines whether mastery differs according to demographic characteristics. The investigation is limited to students enrolled in Cookery at Puro National High School during School Year 2025-2026 and uses performance-based assessment supported by questionnaire data. The study is therefore positioned not merely as an evaluation of academic performance but as a competency-focused assessment intended to identify specific skill strengths, deficiencies, and instructional needs. Such evidence may assist teachers and administrators in developing targeted activities, improving resource allocation, and strengthening practical cookery instruction.

The study is principally aligned with SDG 4 - Quality Education, particularly its emphasis on relevant technical and vocational skills. Assessing actual cookery competencies supports quality learning by determining whether learners can demonstrate skills expected from practical education rather than merely complete classroom requirements. UNESCO (2022) similarly emphasizes technical and vocational education and training as an important means of developing skills for learning, employment, productive work, inclusion, and sustainable development. The study also relates to SDG 3 - Good Health and Well-Being because sanitation, food handling, and safe preparation are integral components of cookery mastery. Philippine evidence demonstrates that structured food safety education can strengthen and sustain food safety knowledge and skills among junior high school students (Limon, 2022), while adolescent food literacy programs also emphasize food preparation and safety behaviors (Sullivan et al., 2026). A further connection exists with SDG 8 - Decent Work and Economic Growth because technical-vocational education develops practical competencies that may support future employment, entrepreneurship, and livelihood preparation. UNESCO (2022) identifies TVET as a means of linking education with productive employment and decent work, while TESDA's competency-based regulations establish occupational standards for professional cookery training (TESDA, 2024).

The study contributes to educational and institutional sustainability by generating localized evidence that teachers and school administrators may use to identify competencies requiring reinforcement, determine instructional priorities, improve assessment, and make better use of available learning resources. Because practical learning is affected by tools, ingredients, facilities, teaching approaches, and opportunities for hands-on experience, systematic assessment can support more responsive and sustainable TLE implementation (Cabutihan et al., 2024; Ramirez, 2025). It also contributes to public health sustainability through its focus on sanitation, safe food preparation, and food handling. These competencies are relevant beyond school because learners may apply them at home, in future workplaces, and in community settings. Strengthening food safety competence therefore connects technical education with health-promoting practices (Limon, 2022; Sullivan et al., 2026). Finally, the study has socio-economic and community sustainability relevance because practical cookery competence may support future technical training, employment, entrepreneurship, and local livelihood activities. Community-supported approaches to food literacy have shown potential to strengthen cooking competence among Filipino secondary students (Soliman & Gabutin, 2025), while UNESCO (2022) emphasizes the role of technical-vocational skills in enabling individuals to participate productively in inclusive and sustainable economies.

2. Material and methods

2.1 Research Design

The study employed a descriptive-quantitative research design to determine the level of mastery of Grade 10 students in cookery. Quantitative research allows the systematic collection and statistical analysis of numerical data to describe characteristics, examine differences, and address specified research questions (Creswell & Creswell, 2023). In this study, the descriptive approach was used to assess students' mastery in preparation, cooking, plating, and sanitation. It also examined differences in mastery according to age, sex, and prior exposure to cooking. The design enabled the researcher to identify students' skill levels and areas requiring instructional support.

2.2 Locale of the Study

The study was conducted at Puro National High School in Aroroy, Masbate. The school served as the setting for data collection because the target participants were Grade 10 students enrolled in cookery.

2.3 Respondents of the Study

The respondents were 30 Grade 10 cookery students of Puro National High School. All respondents completed and returned the distributed questionnaires, resulting in a 100% retrieval rate. The respondents were assessed according to their demographic profile, particularly age, sex, and prior exposure to cooking, as well as their mastery of preparation, cooking, plating, and sanitation.

2.4 Sample and Sampling Procedure

Convenience sampling was used to select the respondents. This non-probability sampling approach involves selecting participants who are accessible and available for inclusion in a study (Andrade, 2021). In the present study, Grade 10 cookery students who were accessible during the data gathering period were included. A total of 30 questionnaires were distributed and successfully retrieved.

2.5 Research Instrument

The study used a researcher-made survey questionnaire developed based on previous studies. Questionnaire development requires that items be aligned with the constructs and objectives being measured and subjected to appropriate review to strengthen their validity (Plengkham et al., 2025). The instrument was reviewed and validated by teachers and school heads who were not included as respondents. Their evaluation was used as the basis for revising and finalizing the questionnaire before administration.

The questionnaire gathered the respondents' demographic profile in terms of age, sex, and prior exposure to cooking; assessed mastery in preparation, cooking, plating, and sanitation; identified challenges encountered in mastering cookery skills; and addressed differences in mastery according to demographic profile. Responses to applicable statements were measured using a four-point Likert-type scale: 4 for Strongly Agree, 3 for Agree, 2 for Disagree, and 1 for Strongly Disagree.

2.6 Data Gathering Procedure

Following approval of the thesis proposal by the school thesis committee, the researcher secured permission to conduct the study. The request was noted by the research adviser and submitted to the Schools Division Superintendent for approval. Permission was subsequently coordinated with the school principals and teachers before the administration of the questionnaire. The research instrument was prepared with the approval of the thesis adviser and subjected to validation by teachers and school heads who were not included in the study. The questionnaire was revised based on the validation and finalized before distribution. Thirty copies were reproduced and administered to the respondents with their approval. Retrieval extended beyond the intended one-month period because of school activities and other concerns, resulting in delays in data processing. After retrieval, the responses were tallied and subjected to statistical treatment with the assistance of an expert statistician. The data were analyzed and interpreted to determine students' cookery mastery, identify the challenges they encountered, and examine differences in mastery according to demographic characteristics.

2.7 Data Analysis Techniques

Frequency count and percentage were used to describe the respondents' demographic profile in terms of age, sex, and prior exposure to cooking. Frequency represented the number of respondents belonging to each category, while percentage represented their proportion relative to the total number of respondents.

Weighted mean was used to summarize the numerical ratings of the students' responses concerning their cookery skills. The calculation considered the frequency of each response and its corresponding numerical weight to determine the average rating for each indicator. One-way Analysis of Variance (ANOVA) was used to determine whether significant differences existed in students' cookery mastery when grouped according to demographic characteristics. ANOVA is appropriate for examining differences among group means within quantitative datasets when its statistical assumptions are satisfied (Field, 2024). The resulting statistical values served as the basis for determining whether observed differences among the groups were statistically significant.

3. Results and Discussion

3.1 Demographic Profile of the Grade 10 Students

3.1.1 Age

Among the 30 respondents, 14 or 47% were 14 to 15 years old, 13 or 43% were 16 to 17 years old, and three or 10% were 18 years old and above. Thus, the largest proportion of respondents belonged to the 14 to 15 age group. The findings indicate that most respondents were within the expected age range of secondary school learners, although some age variation was present. Age is one of several demographic characteristics considered in contemporary research examining differences in adolescents' cooking competence and perceptions of cooking ability (Hermosa-Bosano & López-Gil, 2025).

3.1.2 Sex

Of the 30 respondents, 25 or 83.3% were female, while five or 16.7% were male. Female students therefore comprised the majority of the participants. The predominance of female respondents reflects an imbalance in the sex composition of the study group. Recent evidence indicates that sex may be associated with adolescents' perceptions of cooking competence. Hermosa-Bosano and López-Gil (2025) found that female adolescents were more likely than males to report very adequate cooking skills, emphasizing that social and demographic factors can influence perceived culinary competence.

3.1.3 Prior Exposure to Cooking

Twenty-two respondents or 73.33% reported prior exposure to cooking, while eight or 26.67% had no previous cooking experience. The majority of the students therefore entered cookery instruction with some prior experience. Prior exposure may provide learners with greater familiarity with food preparation activities and cooking procedures. Recent reviews indicate that opportunities for active participation and repeated cooking experiences can contribute to the development of cooking knowledge, skills, and confidence among children and adolescents (van der Horst et al., 2024; Bessette et al., 2026).

3.2 Level of Mastery in Cookery Skills

3.2.1 Preparation

The students obtained an overall weighted mean of 3.33 for preparation, interpreted as Strongly Agree. The highest-rated competencies were preparing all ingredients before cooking and following recipe instructions carefully, both with a weighted mean of 3.63. Washing, peeling, and cutting ingredients properly obtained 3.53, while measuring ingredients accurately and organizing tools and utensils both obtained 3.47. Lower ratings were recorded for checking ingredient freshness and quality at 3.30, following mise en place principles at 3.20, handling raw ingredients properly to avoid waste at 3.07, preparing ingredients within the required time at 3.03, and preparing ingredients neatly and systematically at 3.00. The findings indicate stronger perceived competence in basic preparation and following procedures, while time management, systematic preparation, and raw ingredient handling remain areas for improvement. Bragado (2023) found that performance task-enriched materials improved students' practical skills in mise en place and food preparation. Similarly, van der Horst et al. (2024) concluded that hands-on cooking interventions frequently produce improvements in cooking knowledge, skills, and self-efficacy, supporting continued practical exposure in developing preparation competencies.

3.2.2 Cooking

The overall weighted mean for cooking was 3.08, interpreted as Agree. Following step-by-step recipe procedures obtained the highest weighted mean of 3.50. Proper use of kitchen tools and equipment and adjustment of cooking temperature both obtained 3.30. Applying different cooking methods, producing dishes with the correct taste and texture, and preparing dishes according to expected standards each obtained 3.03. Lower ratings were recorded for ensuring even cooking at 2.97, cooking within the required time at 2.93, making adjustments to improve dish quality at 2.90, and avoiding overcooking or undercooking at 2.77. The results indicate satisfactory perceived competence in cooking, particularly in following procedures, using equipment, and adjusting temperature, but show areas for further development in cooking control, time management, and quality adjustment. LeBlanc et al. (2022) found that participation in an experiential high school cooking course significantly improved students' cooking and food skills. Ramirez (2025) likewise emphasized the contribution of experiential learning in Grade 10 TLE Cookery, particularly through concrete experience and reflective learning. These findings support the importance of repeated hands-on activities in developing practical cooking competence.

3.2.3 Plating

The students obtained an overall weighted mean of 3.07 for plating, interpreted as Agree. Arranging food attractively and portioning food properly received the highest weighted means of 3.23. Highlighting the main dish and applying an appropriate garnish obtained 3.20, while making a dish appear appetizing received 3.17. Using an appropriate plate or container obtained 3.13, and creating a neat presentation received 3.07. Balancing color, shape, and texture and using suitable edible garnishes both obtained 3.00. Following standard plating techniques received 2.97, while presenting dishes within the required time obtained the lowest mean of 2.73. The findings indicate satisfactory perceived mastery of food arrangement, portioning, garnishing, and visual presentation, although students require further improvement in standard plating techniques and completing presentation within the required time. Bragado (2023) demonstrated that structured performance tasks can improve practical cookery competencies, including food preparation and presentation. Ronquillo and Manaog (2025) further reported that Grade 10 cookery students experience difficulties related to ingredients, equipment, facilities, and participation, which may restrict their opportunities to practice a wider range of techniques.

3.2.4 Sanitation

Sanitation obtained the highest overall weighted mean among the four domains at 3.50, interpreted as Strongly Agree. Proper handwashing before and after cooking received the highest weighted mean of 3.83. Maintaining cleanliness in the cooking area and sanitizing utensils and equipment both obtained 3.67. Proper ingredient storage received 3.57, following safety procedures when handling hot or sharp objects obtained 3.53, and wearing proper attire received 3.50. Waste disposal and maintaining a hygienic environment both obtained 3.37, while separating raw and cooked food and consistently observing food safety standards received the lowest means of 3.27. The results indicate that sanitation was the strongest perceived area of cookery mastery among the respondents, particularly in handwashing, cleanliness, equipment sanitation, storage, and personal safety. However, greater emphasis may still be placed on preventing cross-contamination and maintaining consistent food safety practices. Limon (2022) found that structured food safety instruction significantly improved and sustained food safety knowledge and skills among Philippine junior high school students. Olanes et al. (2025) likewise reported high

adherence to sanitation and hygiene practices in an educational food-service environment and emphasized continued monitoring, sanitation resources, and compliance with food safety procedures.

3.3 Challenges Encountered in Mastering Cookery Skills

The students obtained an overall weighted mean of 2.69 for challenges encountered, interpreted as Agree. Decorating finished products was the highest-rated challenge at 3.00, followed by preparing ingredients within the required time at 2.87 and lack of confidence in independently performing bread, pastry, and cookery tasks at 2.80. Controlling baking time and temperature obtained 2.70. Applying the correct cooking methods and plating or food presentation both obtained 2.67, while measuring ingredients accurately received 2.63. Difficulties with proper mixing methods and following step-by-step recipe instructions obtained 2.57 and 2.53, respectively. Forgetting proper sanitation and hygiene obtained the lowest weighted mean of 2.50 and was interpreted as Disagree. The findings indicate that students encounter greater challenges in decorating, time management, independent performance, cooking techniques, and presentation than in sanitation and hygiene. Ronquillo and Manaog (2025) similarly found that Grade 10 cookery students encounter difficulties associated with ingredients, equipment, facilities, and participation, with insufficient resources potentially restricting exposure to different cooking techniques. Bessette et al. (2026) further found that structured cooking programs can improve cooking skills and self-efficacy among children and adolescents, suggesting the importance of sufficient opportunities for practical experience and confidence development.

3.4 Differences in Cookery Skill Mastery According to Demographic Profile

The one-way ANOVA produced an F-value of 2.525, which was lower than the critical F-value of 4.347. The p-value of 0.141 was greater than the 0.05 level of significance. These results indicate that there was no statistically significant difference in students' mastery of cookery skills across the demographic groups compared. Therefore, the null hypothesis was not rejected. The finding indicates that the demographic characteristics examined in the study did not significantly differentiate cookery mastery within this group of respondents. This result should be interpreted within the specific context and sample of Puro National High School. In contrast, Hermosa-Bosano and López-Gil (2025), using a substantially larger adolescent sample in Spain, found that perceived cooking competence was associated with sex, socioeconomic status, and type of schooling. The difference in findings indicates that demographic relationships with cooking competence may vary across populations and educational contexts and should not automatically be generalized from one setting to another.

4. Conclusion & Recommendations

The study concluded that Grade 10 students of Puro National High School generally demonstrated satisfactory to high mastery of cookery skills. They showed strong competence in preparation and sanitation, particularly in preparing ingredients, following recipes, maintaining cleanliness, practicing hand hygiene, and sanitizing utensils and equipment. Cooking and plating skills were satisfactory, although weaknesses remained in time management, controlling cooking outcomes, applying standard plating techniques, balancing presentation elements, and completing tasks within the required time. Students also experienced moderate challenges in decorating finished products, working within time constraints, performing tasks independently, controlling time and temperature, applying appropriate cooking methods, measuring ingredients, and food presentation. Sanitation and hygiene were among the least problematic areas. Furthermore, no significant difference was found in students' mastery of cookery skills based on their demographic profile.

Teachers should provide additional workshops, demonstrations, and hands-on activities focusing on food decoration, plating, proper cooking methods, time and temperature control, measurement, and mixing techniques. Timed cooking exercises should be conducted to strengthen students' time management, while individual tasks and projects should be provided to develop confidence and independence. Continued emphasis on sanitation and hygiene is also recommended to sustain students' good food safety practices. Future researchers are encouraged to conduct similar studies using a larger sample and additional factors that may contribute to a broader assessment of students' mastery in cookery.

5. Compliance with ethical standards

The study followed the institutional procedures described in the manuscript before data collection. Following approval of the thesis proposal by the school thesis committee, permission to conduct the study was secured through the research adviser and submitted to the Schools Division Superintendent. Permission was subsequently coordinated with the school principals and teachers before the questionnaires were administered to the respondents.

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