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Enhancing Cookery Skills Through Contextualized Instruction Using Locally Available Resources

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Abstract

This study examined the relationship between learners' cookery skills and the implementation of contextualized instruction using locally available resources in Technology and Livelihood Education (TLE). Grounded in the concept of contextualized learning, the research emphasized aligning instruction with students' local environment, culture, and available materials to enhance practical competencies. A descriptive-correlational research design was employed, involving Grade 10 cookery students as respondents. Data were gathered using structured instruments assessing cookery skills, the level of contextualization in instruction, and challenges encountered, and were analyzed using descriptive statistics and Pearson r correlation. Findings revealed that students demonstrated a satisfactory level of mastery in cookery skills, particularly in basic food preparation, sanitation, and safety practices, although improvement is needed in advanced techniques and presentation. Learners also exhibited a satisfactory level of contextualization, especially in integrating local ingredients and adapting recipes to cultural practices, though the use of indigenous tools and broader community engagement remained limited. The study further identified moderate challenges, including seasonal availability of ingredients, limited budget, restricted access to traditional tools, and difficulty adapting foreign recipes to local contexts. Importantly, results showed a statistically significant moderate positive relationship ($r = 0.687$) between learners' cookery skills and the implementation of contextualized instruction, indicating that the use of locally available resources enhances skill development. The study concludes that contextualized instruction is an effective approach for improving cookery competencies and recommends increased integration of local resources, hands-on training, and support for traditional culinary practices. This research aligns with Sustainable Development Goal 4 (Quality Education) by promoting relevant and inclusive learning, and SDG 12 (Responsible Consumption and Production) through the use of local and sustainable food resources. The sustainability impact of the study lies in strengthening culturally responsive education, promoting local food systems, and supporting community-based and resource-efficient learning practices.

Keywords: Contextualized instruction, Cookery skills, Local resources, Sustainability, Technology and Livelihood Education

1. Introduction

Cooking develops creativity, responsibility, and practical competencies essential for daily living and future careers. In the Philippine context, TLE plays a critical role in equipping learners with technical and livelihood skills, particularly in cookery, which includes food preparation, kitchen management, and entrepreneurship. Despite its importance, traditional cookery instruction often emphasizes standardized methods and commercial ingredients, limiting students' engagement with local culture and resources. Contextualized instruction addresses this limitation by integrating locally available ingredients, indigenous tools, and community practices, making learning more meaningful and sustainable. This approach aligns with Republic Act No. 10533, which mandates a localized, culture-sensitive, and responsive curriculum, and DepEd Memorandum No. 079, s. 2025, which supports Home Economics education and contextualized teaching strategies.

Literature highlights several key themes:
Contextualized and Experiential Learning. Contextualized and project-based approaches enhance academic and vocational outcomes (Ladhifah and Arifin, 2025; Bhattarai, 2025). Contextual Teaching and Learning (CTL) connects academic content to real-life applications, improving motivation and retention (Perin, 2011; Career Ladders Project, 2009). Cultural Integration and Local Knowledge. Integrating indigenous practices strengthens cultural identity and learning relevance (Fatmawati et al., 2025; Morales, 2022; Tamayo et al., 2025). Culinary traditions and local ingredients foster both technical competence and cultural appreciation (Muñoz et al., 2022; Pérez-Rodrigo & Aranceta, 2023; Mercado & Andalecio, 2020). Skill Development through Hands-on Learning. Practical cooking programs improve competence, confidence, and food-related behaviors (Perdue et al., 2014; Schober et al., 2022). Farm-to-school and community-based programs enhance food literacy and engagement (Izumi et al., 2022; Davis et al., 2021; SEARCA, 2022). Technology and Innovation in Cookery Education. Instructional videos and digital tools improve cognitive and psychomotor skills (Bragado, 2023; Recafrente et al., 2025; Flores, 2023; Quimco et al., 2025). However, effective integration requires balanced instructional design (Han

and Na, 2025). Community and Industry Partnerships. Collaboration with chefs, families, and communities enhances authenticity and skill application (Nelson et al., 2021; Wright et al., 2021; Worsley et al., 2020). Collectively, these studies emphasize that contextualized, culturally grounded, and experiential instruction significantly enhances cookery education outcomes.

Globally, culinary education increasingly emphasizes local food systems, sustainability, and experiential learning. Studies in Europe, Asia, and North America show that using local ingredients improves engagement, food literacy, and sustainable practices (Oostindjer et al., 2021; Reicks et al., 2021; Fang et al., 2023). In the Philippines, contextualized learning integrates cultural heritage, indigenous knowledge, and local resources into instruction (Cinso and Estal, 2025; Arce and Luzano, 2021; Espiritu and Dizon, 2019). Local culinary traditions, such as the use of native spices and heritage foods, strengthen identity and promote sustainable practices (Vera Cruz et al., 2023; Adaong et al., 2025). At the institutional level, Masbate National Comprehensive High School provides a relevant setting due to its diverse student population and emphasis on practical, hands-on TLE instruction.

This study is grounded in three major learning theories:
Contextual Teaching and Learning (CTL) Theory by Johnson (2002), which emphasizes learning through real-life contexts. Experiential Learning Theory by Kolb (1984), which highlights learning through direct experience and reflection. Constructivist Learning Theory by Piaget (1972) and Vygotsky (1978), which explains that learners build knowledge based on prior experiences. These frameworks support the integration of locally available resources in cookery instruction, enabling learners to connect theory with practice and develop meaningful competencies.

While existing studies highlight contextualization, cultural integration, and technology in cookery education, there is limited research focusing on the systematic use of locally available resources in Philippine secondary schools. Few studies explicitly demonstrate how indigenous ingredients, tools, and community practices can be integrated to enhance both technical skills and cultural appreciation. This study addresses this gap by examining the direct relationship between contextualized instruction using local resources and learners' cookery skills, emphasizing practicality, sustainability, and cultural relevance.

This study aligns with the following SDGs:
SDG 4 – Quality Education: Promotes relevant, inclusive, and contextualized learning aligned with learners' environments.
SDG 8 – Decent Work and Economic Growth: Enhances livelihood skills and entrepreneurial competencies in cookery.
SDG 12 – Responsible Consumption and Production: Encourages the use of local, sustainable food resources and minimizes reliance on imported goods.
SDG 11 – Sustainable Cities and Communities: Supports preservation of local food culture and community-based practices.
By integrating local resources into education, the study contributes to sustainable, culturally responsive learning systems.

This study contributes to multiple dimensions of sustainability:
Educational sustainability: Enhances teaching effectiveness through contextualized learning.
Cultural sustainability: Preserves indigenous culinary practices and local food heritage.
Socio-economic sustainability: Supports local producers and promotes livelihood opportunities.
Community sustainability: Strengthens school-community partnerships and engagement.
Technological sustainability: Integrates appropriate instructional innovations such as video-based learning.

Overall, the study promotes a holistic approach to cookery education that is practical, culturally grounded, and sustainable, ensuring that learners develop competencies relevant to both personal and community development.

2. Material and methods

2.1 Research Design

The study utilized a descriptive-correlational research design to assess the learners' cookery skills and the extent of contextualized instruction using locally available resources. It also examined whether a significant relationship exists between these variables and whether differences occur before and after the implementation of contextualized instruction. Statistical methods such as percentage, weighted mean, and One Way Analysis of Variance were used to analyze differences, while Pearson correlation was applied to determine relationships among variables.

2.2 Locale of the Study

The study was conducted at Masbate National Comprehensive High School in Masbate City, Philippines. The school serves a diverse population of learners from both urban and rural communities and offers Technology and Livelihood Education programs where cookery is a key component. The institution provides facilities such as kitchen laboratories and access to

local ingredients, making it a suitable setting for examining contextualized instruction using locally available resources. Its emphasis on hands-on learning further supports the practical nature of the study.

2.3 Respondents of the Study

The respondents of the study were 200 students enrolled in cookery-related subjects at Masbate National Comprehensive High School. These learners represent the target group for assessing the effectiveness of contextualized instruction in enhancing cookery skills, as they are actively engaged in practical cookery learning activities.

2.4 Sample and Sampling Procedure

The study involved 200 students as respondents, representing the population of learners enrolled in cookery classes in the selected school. The sample included students with varying demographic characteristics, particularly in terms of age and sex, ensuring that the data reflected diverse learner profiles relevant to the study objectives.

2.5 Research Instrument

The primary instrument used in the study was a structured survey questionnaire designed to measure several variables, including the respondents' profile, level of cookery skills, extent of contextualized instruction, and challenges encountered in using locally available resources. The questionnaire used a Likert scale format ranging from strongly agree to strongly disagree to assess students' perceptions and experiences. It included indicators related to food preparation techniques, cooking methods, food presentation, kitchen safety, integration of local ingredients, adaptation of recipes, use of indigenous tools, and community-based cooking practices.

2.6 Data Gathering Procedure

Data were collected through the administration of survey questionnaires to the respondents. The process involved gathering information on students' demographic profiles, cookery skills, extent of contextualized instruction, and challenges encountered. The collected data were then organized, presented, and prepared for analysis and interpretation, forming the basis for evaluating the effectiveness of contextualized cookery instruction using locally available resources.

2.7 Data Analysis Techniques

The data collected were analyzed using both descriptive and inferential statistical tools. Percentage and weighted mean were used to describe the respondents' profile and assess levels of cookery skills, contextualized instruction, and challenges encountered. One Way Analysis of Variance was employed to determine significant differences in learners' cookery skills before and after the implementation of contextualized instruction. Pearson correlation was used to examine the relationship between learners' cookery skills and the use of contextualized instruction using locally available resources, allowing for the identification of significant associations between the variables.

3. Results and Discussion

3.1 Learners' Profile and Cookery Competence

3.1.1 Demographic Profile of the Students

The results show that most respondents were aged 16–17 years, followed by those aged 14–15 years, with only a small percentage aged 18 and above. In terms of sex, the distribution was nearly equal, with slightly more female students than male students. These findings indicate that the respondents are within the typical age range for their grade level and are adequately represented in terms of sex, making them suitable participants for assessing cookery skills. A balanced demographic profile supports the reliability of the data in evaluating the effectiveness of contextualized instruction.

3.1.2 Level of Cookery Skills of the Students

The results reveal that students demonstrate a satisfactory level of cookery skills across food preparation, cooking methods, food presentation, and kitchen safety and sanitation. They show strong competence in basic practices such as washing and sanitizing ingredients, proper mise en place, ingredient selection, and adherence to safety procedures, while lower performance is observed in advanced techniques such as portioning, cross-contamination prevention, cooking methods, plating aesthetics, food storage, and accident prevention. This suggests that while learners have developed foundational cookery competencies, they require further training in advanced and technical aspects. The findings imply that continuous practice and guided instruction are essential to improve higher-level skills and ensure consistency in performance.

3.2 Contextualized Instruction in Cookery

3.2.1 Extent of Contextualized Instruction Using Local Resources

The results indicate that students exhibit a satisfactory level of contextualization in cookery, particularly in integrating local ingredients and adapting recipes to local culture. However, the use of indigenous cooking tools is limited, and participation in community-based cooking practices is moderate, with minimal involvement in broader community activities. These findings imply that learners are able to connect cooking practices with their local environment, which enhances relevance and practicality. However, the limited use of indigenous tools and low engagement in community

activities suggest a shift toward modern practices and highlight the need to strengthen cultural preservation and community involvement in cookery instruction.

3.3 Challenges in Contextualized Cookery Instruction

The results show that students experience moderate challenges in implementing contextualized cookery instruction, with an overall weighted mean indicating general agreement. The major challenges include seasonal unavailability of ingredients, limited budget, fewer local ingredient options compared to imported ones, restricted access to indigenous tools, difficulty in adapting foreign recipes, limited experience with traditional methods, and concerns about ingredient quality and presentation confidence. Lack of family or community support was identified as the least concern. These results suggest that resource-related constraints significantly affect the implementation of contextualized instruction. Despite these challenges, the presence of family and community support indicates a positive external environment. The findings align with studies emphasizing that contextualized and practical learning enhances skill development but may involve logistical and resource limitations. Come and Capilitan (2025)39 noted that contextualized approaches improve engagement and skill mastery despite challenges, while Egano (2024)44 highlighted the importance of practical learning in overcoming limitations of traditional or modular instruction.

3.4 Relationship Between Cookery Skills and Contextualized Instruction

The results reveal a statistically significant moderate positive linear relationship between learners' cookery skills and the implementation of contextualized instruction using locally available resources, with a computed r-value of 0.687 exceeding the critical value at a 0.05 level of significance. This indicates that increased use of contextualized instruction is associated with improved cookery skills among learners. The findings suggest that tailoring instruction to local contexts enhances practical competencies and learning outcomes. Integrating locally available resources in teaching fosters meaningful learning experiences and supports the development of relevant and applicable skills in cookery.

4. Conclusion & Recommendations

The findings of the study indicate that the respondents were generally within the appropriate age range and were evenly distributed by sex, making them suitable for evaluating cookery competence. The learners demonstrated a satisfactory level of cookery skills, particularly in basic food preparation, safety, and sanitation practices, although improvement is still needed in advanced techniques, presentation, and food handling. The students also showed a satisfactory level of contextualized instruction, effectively integrating local ingredients and adapting recipes to local culture, but with limited use of indigenous tools and minimal engagement in broader community-based practices. Moderate challenges were encountered, mainly related to the availability, quality, and cost of local ingredients, as well as limited access to traditional tools and methods, while family and community support remained generally present. Furthermore, there was a statistically significant moderate positive relationship between learners' cookery skills and the implementation of contextualized instruction using locally available resources, indicating that contextualization contributes to the enhancement of practical cookery competencies.

Based on the findings and conclusions, it is recommended that teachers design age-appropriate and gender-inclusive cookery lessons to ensure equal participation among learners, while schools should strengthen the implementation of contextualized instruction by providing more hands-on training and workshops focused on improving advanced cookery techniques, safety practices, and food handling skills

Compliance with ethical standards

The authors declare no conflict of interest. This study complied with recognized ethical standards for human-participant research by ensuring voluntary participation with informed consent, the right to withdraw without penalty, and strict confidentiality through anonymous, secure, and aggregated data handling. Given the focus on psychological well-being, procedures were non-invasive, and safeguards were observed to minimize discomfort, with guidance to appropriate support services when needed, and required institutional permissions were secured for instrument use and access to academic records.

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