

Beyond Food Preparation: Lived Experiences of BTLEd Students at Don Mariano Marcos Memorial State University in Developing Food Sanitation and Food Management Competencies

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Abstract

Food sanitation and food management are fundamental competencies in Technology and Livelihood Education (TLE), particularly among Bachelor of Technology and Livelihood Education (BTLEd) students who are preparing to become future educators and food service professionals. Beyond acquiring technical cooking skills, students are expected to develop competencies that ensure food safety, quality assurance, hygiene practices, resource management, and compliance with public health standards. Despite extensive practical training, little is known about how BTLEd students experience the process of developing these competencies within authentic educational environments. This study explored the lived experiences of BTLEd students at Don Mariano Marcos Memorial State University (DMMSU) in developing food sanitation and food management competencies. Using a qualitative phenomenological research design, fifteen BTLEd students who had completed food laboratory courses and practicum experiences were purposively selected. Data were gathered through semi-structured, in-depth interviews and analyzed using Colaizzi's seven-step phenomenological method. Four major themes emerged: (1) Building Professional Discipline Through Sanitation Practices; (2) Learning Responsibility Through Food Management Experiences; (3) Overcoming Operational Challenges During Practical Training; and (4) Developing Industry-Ready Competencies Through Experiential Learning. Findings revealed that authentic laboratory experiences enabled students to cultivate responsibility, critical thinking, teamwork, resource management, and adherence to food safety standards. Practical exposure also strengthened students' confidence in applying theoretical knowledge to real-life food service situations. The study recommends strengthening experiential learning opportunities, enhancing laboratory facilities, integrating current food safety regulations into instruction, and fostering stronger university-industry collaborations to prepare future TLE educators and hospitality professionals.

1. Introduction

Food safety remains one of the most significant public health concerns worldwide. According to international food safety organizations, millions of individuals experience foodborne illnesses annually due to improper food handling, poor sanitation practices, and ineffective food management systems. Consequently, higher education institutions offering Technology and Livelihood Education (TLE), Hospitality Management, and culinary-related programs have increasingly emphasized competency-based instruction that equips students with

the practical knowledge and professional behaviors necessary to uphold food safety standards.

Food sanitation encompasses personal hygiene, kitchen sanitation, cross-contamination prevention, proper storage, temperature control, cleaning and disinfection procedures, and compliance with food safety regulations. Meanwhile, food management involves menu planning, purchasing, inventory control, cost management, waste reduction, quality

assurance, workflow organization, and efficient utilization of resources. These competencies are essential not only for employment in the hospitality and food industries but also for future educators responsible for teaching food-related subjects.

Experiential learning has become an essential instructional approach in competency-based education. Kolb's Experiential Learning Theory emphasizes that meaningful learning occurs through concrete experiences, reflective observation, conceptual understanding, and active experimentation. Within food laboratory settings, BTLEd students engage in authentic situations that require them to apply theoretical concepts while simultaneously developing technical skills, decision-making abilities, teamwork, and professional responsibility.

Previous studies have demonstrated that practical training significantly improves students' technical competence, food safety awareness, and workplace readiness. Research also indicates that repeated exposure to laboratory experiences enhances confidence, critical thinking, and problem-solving skills. Nevertheless, most existing studies focus primarily on competency assessment or academic performance, while limited qualitative evidence explores how students personally experience the process of developing food sanitation and food management competencies.

The Philippine educational context likewise emphasizes competency-based instruction through the Commission on Higher Education (CHED), encouraging universities to produce graduates who possess industry-

relevant knowledge, professional ethics, and lifelong learning capabilities. For BTLEd students, competency development extends beyond mastering recipes and cooking techniques; it requires cultivating habits of cleanliness, accountability, resource stewardship, and leadership that reflect professional standards in food service operations.

Don Mariano Marcos Memorial State University serves as one of the leading institutions preparing future TLE educators through practical laboratory instruction and community-based learning experiences. Understanding students' lived experiences can provide valuable insights into instructional practices that effectively facilitate competency development while identifying challenges encountered during laboratory and practicum activities.

This study therefore seeks to explore the lived experiences of BTLEd students in developing food sanitation and food management competencies, contributing to the growing body of qualitative literature on experiential learning, technical education, and professional competency development.

Statement of the Problem

This study explored the lived experiences of BTLEd students at Don Mariano Marcos Memorial State University in developing food sanitation and food management competencies.

Specifically, it sought to answer the following questions:

1. How do BTLEd students describe their experiences in developing food sanitation competencies?
2. How do students develop food management competencies during laboratory and practicum experiences?
3. What challenges do students encounter while practicing food sanitation and food management?
4. What meanings do students attribute to these experiences in shaping their professional competencies as future TLE educators?

2. Review of Related Literature

Food Sanitation Competencies in Technical and Vocational Education

Food sanitation is a cornerstone of food service education, ensuring that future professionals understand the principles of food safety, hygiene, and public health. According to the **World Health Organization (WHO)**, unsafe food contributes significantly to foodborne diseases, making sanitation education an indispensable component of higher education curricula. Institutions preparing future educators and food service practitioners are therefore expected to integrate sanitation competencies into laboratory instruction and practical experiences.

Recent studies indicate that students who receive consistent laboratory-based instruction demonstrate higher levels of compliance with food safety protocols than those who rely solely on classroom-based learning. Practical activities involving food

preparation, equipment sanitation, and contamination prevention reinforce theoretical knowledge and promote habitual hygienic practices. Moreover, repeated exposure to authentic food preparation environments enhances students' confidence in implementing food safety standards in both educational and professional settings.

Researchers have likewise emphasized that sanitation competencies extend beyond technical skills. They involve cultivating professional attitudes such as responsibility, discipline, attention to detail, accountability, and ethical decision-making. These qualities enable future educators to model proper food safety behaviors while preparing learners for industry expectations.

Food Management Competencies among Higher Education Students

Food management encompasses a wide range of competencies including menu planning, purchasing, inventory control, budgeting, food costing, quality assurance, waste reduction, storage management, and resource allocation. These competencies are vital for efficient food service operations and contribute to organizational sustainability.

Studies involving hospitality and technical education students reveal that food management skills are best developed through experiential learning environments where learners participate in authentic decision-making processes. Laboratory exercises expose students to realistic operational challenges that require planning, coordination, communication, and resource management.

Effective food management education also develops students' organizational skills and problem-solving abilities. Through collaborative learning, students learn how to distribute responsibilities, manage time efficiently, monitor food quality, and minimize operational losses. Such competencies prepare graduates for supervisory roles in educational institutions, food establishments, and community-based livelihood programs.

Experiential Learning in Technical and Livelihood Education

Experiential learning has become one of the most effective pedagogical approaches in competency-based education. Rather than passively receiving information, students actively construct knowledge through direct experience, reflection, conceptualization, and application.

Within Technology and Livelihood Education, laboratory activities provide authentic contexts where learners encounter practical problems requiring immediate solutions. Students practice food preparation, sanitation procedures, inventory management, and teamwork while receiving continuous feedback from instructors. Reflection after each activity enables learners to recognize mistakes, improve techniques, and strengthen professional judgment.

Numerous educational studies have reported that experiential learning improves learner engagement, critical thinking, self-confidence, communication skills, and lifelong learning attitudes. It also bridges the gap between theoretical instruction and workplace expectations by allowing students

to apply classroom concepts in realistic settings.

Challenges in Developing Food Sanitation and Food Management Competencies

Although laboratory instruction promotes competency development, students often encounter challenges during practical training. Limited laboratory facilities, inadequate equipment, insufficient instructional materials, and large class sizes may restrict opportunities for meaningful hands-on practice.

Financial constraints also affect students' learning experiences, particularly when purchasing ingredients or laboratory supplies. Time limitations during practical sessions may reduce opportunities for reflection and skill refinement. Furthermore, students frequently report anxiety, fear of making mistakes, and difficulty balancing sanitation requirements with food preparation efficiency.

Nevertheless, these challenges often become valuable learning experiences. Exposure to operational difficulties encourages adaptability, resilience, collaboration, and resourcefulness qualities that are highly valued in both educational and industry settings.

Competency Development among Future Technology and Livelihood Education Teachers

Competency-based teacher education aims to prepare graduates who possess both technical expertise and effective pedagogical skills. For BTLED students specializing in Home Economics and Food Trades, competency

development includes mastery of food safety principles, instructional strategies, classroom management, communication, leadership, and professional ethics.

Research suggests that authentic practicum experiences significantly strengthen students' readiness for teaching. As learners demonstrate proper sanitation practices and efficient food management, they simultaneously develop the confidence necessary to teach these competencies to future learners.

Professional competence also emerges through reflective practice. Students become more aware of the importance of continuous learning, adherence to industry standards, and commitment to quality instruction. Consequently, competency development extends beyond technical proficiency toward the formation of professional identity.

3. Methodology

This study employed a **qualitative phenomenological research design** to explore the lived experiences of Bachelor of Technology and Livelihood Education (BTLED) students at **Don Mariano Marcos Memorial State University (DMMMSU)** in developing food sanitation and food management competencies. A phenomenological approach was deemed appropriate because it seeks to understand and describe the meanings individuals attribute to their lived experiences of a particular phenomenon (Creswell & Poth, 2018; Moustakas, 1994). Rather than measuring competency levels quantitatively, this design enabled participants to narrate their personal experiences, reflections,

challenges, and learning processes in acquiring food sanitation and food management competencies through laboratory instruction and experiential learning. The study was conducted at DMMMSU, a state university recognized for offering competency-based Technology and Livelihood Education programs with comprehensive food laboratory courses and practicum experiences. The participants consisted of **15 BTLED students** selected through **purposive sampling**, ensuring that only individuals with substantial exposure to food laboratory courses and practical food management activities participated in the study. Eligible participants were students who had completed major food laboratory subjects, participated in food sanitation and food management activities, and were willing to voluntarily share their experiences through informed consent. Students with limited laboratory exposure, those who had not completed relevant food-related courses, or those unwilling to participate were excluded from the study. Data collection commenced after securing approval from the university authorities and obtaining informed consent from all participants. Semi-structured, face-to-face interviews served as the primary data collection method, allowing participants to freely describe their experiences while enabling the researcher to probe for deeper insights. Each interview lasted approximately 45 to 60 minutes and was audio-recorded with participants' permission. Field notes were likewise documented to capture non-verbal cues and contextual observations that complemented the interview data. Prior to the actual data gathering, the researcher-developed interview guide underwent expert

validation by specialists in qualitative research and Technology and Livelihood Education to ensure content validity, clarity, and relevance. A pilot interview involving BTLED students from another institution was likewise conducted to refine the interview questions, although these participants were excluded from the actual study. Audio-recorded interviews were transcribed verbatim and analyzed using **Colaizzi's Seven-Step Phenomenological Method**, which involved repeatedly reading the transcripts, extracting significant statements, formulating meanings, clustering meanings into themes, developing exhaustive descriptions, identifying the fundamental structure of the phenomenon, and validating the findings through member checking. Data collection continued until thematic saturation was achieved, indicating that no new themes emerged from subsequent interviews. To ensure the rigor and trustworthiness of the study, the researcher adopted **Lincoln and Guba's (1985)** criteria of credibility, transferability, dependability, and confirmability. Credibility was established through prolonged engagement, member checking, peer debriefing, and triangulation of interview transcripts and field notes. Transferability was enhanced by providing thick descriptions of the research context, participants, and procedures. Dependability was ensured by maintaining a comprehensive audit trail documenting methodological decisions and data analysis processes, while confirmability was achieved through reflexive journaling and systematic documentation to minimize researcher bias.

Ethical principles were strictly observed throughout the research process. Participation was entirely voluntary, and participants were informed of their right to withdraw from the study at any point without any adverse consequences. Confidentiality and anonymity were protected through the use of pseudonyms and secure storage of all research data in password-protected files accessible only to the researcher. The study adhered to the ethical principles of respect for persons, beneficence, and justice, ensuring that participants were treated with dignity and that every effort was made to protect their welfare while generating meaningful contributions to the improvement of food sanitation and food management education among future Technology and Livelihood Education teachers.

Participant Profile

The study involved **15 Bachelor of Technology and Livelihood Education (BTLED) students** from Don Mariano Marcos Memorial State University who had completed food laboratory courses and participated in practical activities involving food sanitation and food management. Participants were selected through purposive sampling because they possessed firsthand experiences relevant to the phenomenon under investigation. To ensure confidentiality, participants were identified using pseudonyms (P1–P15).

Profile Variable	Description
Participants	15 BTLEd Students
Institution	Don Mariano Marcos Memorial State University
Sampling Technique	Purposive Sampling
Data Collection	Semi-structured Interviews
Research Design	Qualitative Phenomenology

Theme 1. Building Professional Discipline Through Food Sanitation Practices

One of the most dominant experiences shared by participants was that food sanitation cultivated discipline, responsibility, and professional habits. Students described sanitation as more than simply cleaning utensils or washing hands; instead, they viewed it as a professional obligation that ensures food safety and protects consumers. Through repeated laboratory activities, participants developed consistent hygienic practices that eventually became part of their daily routines.

One participant shared:

"Before entering the laboratory, I thought cleaning was just another requirement. But after our laboratory sessions, I realized that sanitation is everyone's responsibility because one mistake can affect many people." (P3)

Another participant stated:

"Our instructors constantly reminded us to sanitize our workstations, wear proper protective equipment, and practice proper

food handling. Eventually, these became habits that I even practice at home." (P9)

Students emphasized that laboratory experiences strengthened their awareness of contamination risks and encouraged greater accountability. They realized that maintaining cleanliness requires consistency, attention to detail, and commitment to professional standards.

These findings support previous research indicating that experiential laboratory instruction enhances students' compliance with food safety standards while strengthening professional attitudes toward hygiene and public health. The findings also align with **Kolb's Experiential Learning Theory**, wherein repeated concrete experiences and reflective practice transform theoretical knowledge into lifelong professional behaviors.

Theme 2. Learning Responsibility Through Food Management Experiences

Participants consistently described food management activities as opportunities to develop organizational and managerial competencies. Laboratory activities

involving menu planning, budgeting, inventory management, purchasing ingredients, portion control, and minimizing food waste enabled students to understand the importance of efficient resource utilization.

One participant explained:

"Food preparation is not just cooking. We learned how to estimate ingredients, manage our budget, and reduce food waste because these are important in actual food service operations." (P6)

Another participant remarked:

"Managing ingredients and dividing responsibilities among group members taught us how to become organized and accountable." (P11)

Participants recognized that food management required planning, communication, teamwork, and decision-making. They realized that successful food preparation depends not only on technical cooking skills but also on effective management of available resources.

These findings corroborate previous studies emphasizing that food management competencies contribute significantly to workplace readiness by strengthening organizational skills, financial awareness, leadership, and collaborative decision-making. Authentic learning experiences allowed students to appreciate the interconnectedness of technical competence and managerial responsibility.

Theme 3. Overcoming Operational Challenges During Practical Training

Participants reported experiencing various challenges while developing food sanitation and food management competencies. Common difficulties included limited laboratory equipment, insufficient ingredients, time constraints, financial limitations, and pressure to meet laboratory standards while simultaneously practicing proper sanitation procedures.

One participant shared:

"Sometimes we had to share equipment because there were not enough materials for everyone. We learned to cooperate and maximize whatever resources were available." (P8)

Another participant reflected:

"There were times when we made mistakes in measuring ingredients or following sanitation procedures, but our instructors encouraged us to learn from those mistakes instead of becoming discouraged." (P13)

Despite these challenges, participants viewed their experiences positively because overcoming obstacles enhanced their adaptability, resilience, creativity, and problem-solving abilities. Rather than discouraging them, operational constraints became opportunities for learning and professional growth.

These findings are consistent with experiential learning literature, which suggests that authentic workplace challenges stimulate critical thinking, resilience, and reflective learning. Students become more capable of responding to real-world

situations through continuous exposure to practical problem-solving experiences.

Theme 4. Developing Industry-Ready Competencies Through Experiential Learning

Participants consistently described laboratory instruction as essential in preparing them for future careers as Technology and Livelihood Education teachers and food service professionals. They believed that practical experiences increased their confidence in implementing food safety practices, managing food operations, and teaching these competencies to future learners.

One participant stated:

"Because of our laboratory experiences, I now feel confident that I can teach proper food sanitation and food preparation to my future students." (P5)

Another participant expressed:

"Every laboratory activity helped us become more prepared for real-life situations. We learned not only cooking skills but also professionalism, teamwork, and responsibility." (P14)

Participants emphasized that experiential learning enabled them to integrate classroom theories with actual practice. They became more aware of industry expectations and recognized the importance of maintaining professional standards in educational and workplace environments.

These findings reinforce the principles of competency-based education, wherein meaningful learning occurs through authentic experiences. Consistent with Kolb's

Experiential Learning Theory, students transformed practical experiences into deeper professional understanding through reflection and continuous application. Laboratory instruction therefore served not merely as a venue for acquiring technical skills but also as a platform for developing confidence, ethical responsibility, leadership, and lifelong learning competencies.

Discussion

The findings reveal that the development of food sanitation and food management competencies among BTLED students extends far beyond mastering food preparation techniques. Participants described competency development as a holistic process involving discipline, responsibility, organization, teamwork, adaptability, and professional identity formation. Laboratory experiences enabled students to translate theoretical concepts into authentic practice, while challenges encountered during training strengthened their resilience and problem-solving skills. These experiences collectively prepared them for the dual roles of becoming competent food service practitioners and effective Technology and Livelihood Education teachers. The study supports **Kolb's Experiential Learning Theory**, demonstrating that competency development occurs through continuous cycles of concrete experience, reflection, conceptualization, and active experimentation. Overall, the findings underscore the value of experiential learning in producing industry-ready graduates who possess the technical expertise, ethical standards, and managerial competencies

required in both educational and food service settings.

Summary of Findings

This phenomenological study explored the lived experiences of Bachelor of Technology and Livelihood Education (BTLEd) students at Don Mariano Marcos Memorial State University in developing food sanitation and food management competencies. Through in-depth interviews with fifteen purposively selected participants and analysis using Colaizzi's Seven-Step Phenomenological Method, four major themes emerged.

First, **Building Professional Discipline Through Food Sanitation Practices** revealed that students perceived food sanitation as more than a technical requirement; it became a foundation for developing discipline, accountability, and professional responsibility. Repeated exposure to sanitation protocols during laboratory activities enabled participants to internalize hygienic practices that extended beyond the classroom into their daily lives.

Second, **Learning Responsibility Through Food Management Experiences** highlighted that laboratory activities involving menu planning, budgeting, inventory control, portioning, and waste management strengthened students' organizational, managerial, and leadership competencies. Participants recognized that effective food management requires planning, teamwork, communication, and efficient resource utilization in addition to technical cooking skills.

Third, **Overcoming Operational Challenges During Practical Training**

demonstrated that students encountered obstacles such as limited laboratory facilities, inadequate equipment, financial constraints, and time pressures. Rather than hindering learning, these challenges enhanced adaptability, creativity, collaboration, resilience, and problem-solving abilities, enabling participants to develop practical strategies for managing real-world food service situations.

Finally, **Developing Industry-Ready Competencies Through Experiential Learning** showed that authentic laboratory experiences significantly improved students' confidence, technical competence, professional ethics, and preparedness for their future careers as Technology and Livelihood Education teachers. Participants emphasized that experiential learning bridged the gap between classroom instruction and industry practice, allowing them to integrate theoretical concepts with authentic workplace experiences.

Overall, the findings indicate that competency development extends beyond food preparation to encompass professional values, reflective learning, leadership, communication, teamwork, and lifelong learning, all of which contribute to preparing competent and industry-ready future educators.

Conclusions

Based on the findings, the study concludes that the development of food sanitation and food management competencies among BTLEd students is a holistic and transformative learning process facilitated through experiential education. Practical

laboratory instruction enables students to acquire not only technical knowledge and procedural skills but also professional attitudes such as discipline, accountability, responsibility, and ethical practice. Authentic learning experiences encourage students to reflect on their actions, improve their decision-making abilities, and confidently apply food safety principles in diverse settings.

The study further concludes that food management competencies are strengthened through collaborative activities that require planning, organization, communication, budgeting, inventory management, and efficient utilization of available resources. These experiences prepare future educators to become competent professionals capable of managing food-related learning environments while promoting safe and sustainable food practices.

Moreover, operational challenges encountered during laboratory instruction serve as valuable learning opportunities that foster resilience, adaptability, creativity, and critical thinking. Instead of becoming barriers, these experiences contribute significantly to students' professional growth and readiness for real-world teaching and food service responsibilities.

Anchored on Kolb's Experiential Learning Theory, the study affirms that competency development occurs through continuous cycles of concrete experience, reflective observation, conceptual understanding, and active experimentation. Consequently, experiential learning remains an effective pedagogical approach for developing industry-ready graduates equipped with the

knowledge, skills, values, and professional competencies expected of future Technology and Livelihood Education educators.

Recommendations

Based on the findings and conclusions, the following recommendations are proposed:

1. **Strengthen experiential learning opportunities.** Higher education institutions should continue enhancing laboratory-based and practicum experiences that provide students with authentic opportunities to apply food sanitation and food management principles in real-world contexts.
2. **Upgrade laboratory facilities and resources.** Universities should invest in modern laboratory equipment, adequate food preparation tools, sanitation materials, and learning resources to maximize students' practical learning experiences and align laboratory instruction with current industry standards.
3. **Integrate updated food safety standards into the curriculum.** Faculty members should continuously incorporate current national and international food safety regulations, sanitation protocols, sustainability practices, and emerging food management technologies into instructional activities to ensure curriculum relevance.
4. **Strengthen university-industry partnerships.** Collaborations with restaurants, hotels, catering

establishments, food manufacturing companies, and public health agencies should be expanded to provide students with meaningful industry immersion, internships, and professional mentoring experiences.

5. **Enhance reflective learning practices.** Instructors are encouraged to integrate reflective journals, portfolio development, peer evaluations, and post-laboratory discussions that allow students to critically evaluate their experiences and continuously improve their competencies.
6. **Promote interdisciplinary competency development.** Future laboratory instruction should integrate communication, leadership, teamwork, entrepreneurship, sustainability, and digital competencies alongside food sanitation and food management skills to prepare graduates for the evolving demands of the food service and education sectors.
7. **Conduct further qualitative and mixed-methods studies.** Future researchers may explore competency development across different universities, technical-vocational programs, hospitality disciplines, or educational settings using larger participant groups or mixed-methods approaches. Comparative studies may also examine the effectiveness of various experiential learning models in strengthening food sanitation and food management competencies.

The implementation of these recommendations may contribute to the continuous improvement of Technology and Livelihood Education programs and support the development of competent, ethical, and industry-ready graduates capable of promoting food safety, effective food management, and quality education in diverse professional settings.

Theoretical Framework

This study is anchored on **Kolb's Experiential Learning Theory (1984)**, which posits that learning occurs through the transformation of experience into knowledge. Kolb proposed a continuous four-stage learning cycle:

- **Concrete Experience**, where learners actively participate in food preparation and sanitation activities;
- **Reflective Observation**, where students evaluate their successes, mistakes, and learning experiences;
- **Abstract Conceptualization**, where learners connect practical experiences with food safety principles and management theories; and
- **Active Experimentation**, where students apply newly acquired knowledge to future laboratory activities and practicum experiences.

Within this study, BTLEd students developed food sanitation and food management competencies by engaging in authentic laboratory experiences, reflecting on these

experiences, integrating theoretical concepts, and continuously improving their practices. The theory provides a strong foundation for understanding how experiential learning shapes professional competence and preparedness for future teaching and food service careers.

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