

Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students

Jed B. Estrada, Norwin John E. Lactaoen, Erika A. Abad, Alyanna Gwayne M. Altares,
Jimuel S. Cezar, and Michelle Ann A. Gallego
President Ramon Magsaysay State University Iba, Zambales

Abstract— This study aimed to determine the challenges in learning culinary fundamentals competencies in a flexible learning environment among hospitality management students in terms of knowledge, skills, and attitude. The study utilized a descriptive research design. A researcher-made questionnaire was used as the primary instrument in gathering data from one hundred fifty (150) Hospitality Management students of President Ramon Magsaysay State University – Main Campus, Iba, Zambales. The respondents were selected using purposive sampling. The findings revealed that the majority of the respondents were young adult females. The respondents perceived that challenges in learning culinary fundamentals competencies in a flexible learning environment among hospitality management students was often a challenge in terms of knowledge, skills, and attitude. The results further showed that there was no significant difference in the assessment of challenges in learning culinary fundamentals competencies in a flexible learning environment among hospitality management students when grouped according to profile variables such as sex and age. Based on the findings, the researchers recommended that instructors provide varied learning strategies and practical activities to improve students' knowledge and skills in culinary education. The use of technology and collaborative activities may also enhance students' engagement and motivation in learning culinary competencies.

Keywords— Flexible Learning, Culinary Fundamentals, Hospitality Management, Competencies, Knowledge, Skills, Attitude.

I. INTRODUCTION

Culinary Fundamentals is one of the core subjects in the Hospitality Management program. It focuses on the development of students' knowledge, skills, and attitudes related to food preparation, cooking techniques, and kitchen operations. Through this subject, students gain essential competencies necessary for future careers in the hospitality and food service industry. According to French et al. (2024), culinary education plays a significant role in improving students' cooking knowledge and self-efficacy through structured learning experiences.

Traditionally, culinary education is conducted through laboratory-based instruction where students perform cooking techniques under the guidance of instructors. These laboratory activities allow students to develop practical skills, understand culinary concepts, and apply proper food safety and sanitation practices. Hands-on learning is essential in skill-based programs,

as emphasized by Askren and James (2020), who noted that experiential learning helps bridge the gap between theory and practice in culinary education.

In recent years, educational institutions have adopted flexible learning approaches to complement traditional teaching methods. Flexible learning allows students to access instructional materials, participate in learning activities, and practice skills both inside and outside the classroom. According to Nejar (2024), the shift to flexible and online learning environments has become common in hospitality education, providing opportunities for independent and technology-supported learning.

However, learning culinary competencies outside the traditional laboratory environment may present certain challenges for students. Limited access to kitchen equipment, lack of direct supervision, and differences in learning environments may affect students' ability

to effectively develop their culinary knowledge and skills. Celestino (2024) found that students in skill-based programs often experience difficulties due to limited resources, lack of equipment, and insufficient practice opportunities.

Furthermore, culinary education requires continuous practice and proper guidance. Without structured learning experiences, students may find it difficult to master culinary techniques and maintain motivation in learning. David A. Kolb (1984) emphasized that learning occurs through experience, and without hands-on practice, skill development may be limited.

Identifying the challenges encountered by students in learning Culinary Fundamentals is important for improving teaching strategies and enhancing learning experiences. Understanding these difficulties may help instructors design more effective learning activities and provide better support to students. As highlighted by Angela Duckworth (2016), perseverance and sustained effort are important factors in overcoming learning challenges.

Therefore, this study aimed to determine the challenges encountered by Hospitality Management students in learning the competencies in Culinary Fundamentals in terms of knowledge, skills, and attitude.

II. LITERATURE REVIEW

Education plays an important role in developing students' knowledge, skills, and attitudes. In hospitality education, culinary training is essential because it equips students with practical competencies required in food service and kitchen operations.

According to Nejar (2024) flexible learning environments became widely adopted in higher education, especially in hospitality and culinary programs where institutions shifted to online or blended instruction. However, the transition created several difficulties for both instructors and students. Studies found that hospitality students often struggle with adapting to online learning platforms, maintaining motivation, and accessing adequate learning resources when studying remotely. These

challenges may affect their academic performance and learning engagement.

In line with this, a study examining hospitality management students in online learning found that students experienced various challenges related to internet connectivity, adaptation to new learning environments, and maintaining engagement in virtual classes. These issues significantly affected their learning experience and academic performance.

In culinary education, laboratory activities are considered essential because they allow students to apply theoretical concepts in real-life cooking situations. Practical learning experiences help students improve their cooking techniques and develop confidence in performing culinary tasks.

Culinary education traditionally relies on experiential learning and practical activities in laboratories or teaching kitchens. Hands-on learning helps students develop technical skills, problem-solving abilities, and confidence in food preparation. Experiential learning approaches allow hospitality students to better understand real-world industry situations and enhance their skill mastery. (Askren, 2020)

However, when culinary courses shift to flexible or online learning environments, students often have fewer opportunities to practice culinary techniques and receive immediate feedback from instructors. As a result, their ability to apply theoretical knowledge in real cooking situations may be limited.

Kim & Lee (2021) asserted that student engagement plays an important role in learning satisfaction and academic achievement in culinary education. A study examining online cooking practice courses found that the quality of online instruction significantly influences students' learning immersion, satisfaction, and academic achievement.

When students are actively engaged in learning activities and supported by effective instructional strategies, their learning outcomes improve. However, limited interaction and inadequate instructional

guidance in online environments may reduce student engagement and make it difficult for learners to understand culinary concepts (Kim & Lee, 2021).

Furthermore, technology has become an important tool in modern education. Digital platforms and instructional resources allow students to access information easily and support independent learning.

However, students may encounter challenges such as limited learning resources, lack of practice opportunities, and difficulties in understanding complex concepts.

According to Celestino (2024) skill-based programs such as culinary arts require continuous practice, instructor feedback, and laboratory experiences. Some studies report that students encounter challenges such as limited practice opportunities, lack of equipment or ingredients, and inadequate resources during practical cooking activities. These challenges can hinder students from mastering fundamental culinary techniques effectively.

In addition, in flexible learning environments, these challenges may become more significant because students must practice independently at home without direct supervision from instructors.

These challenges may affect students' ability to develop the required competencies in culinary education. Therefore, understanding these challenges is essential for improving teaching methods and enhancing student learning experiences.

Knowledge in Culinary Education

Knowledge is an important component of learning because it provides the theoretical foundation for performing tasks and understanding processes. In culinary education, students must acquire knowledge about ingredients, cooking methods, food safety, and kitchen operations before performing actual cooking activities.

According to French et. al. (2024), cooking education programs help improve students' understanding of

food preparation and nutrition concepts. Their study found that students who participated in cooking courses demonstrated improved culinary knowledge and greater confidence in food preparation tasks.

Similarly, Soliman & Gabutin (2025) emphasized that culinary education contributes to the development of food literacy among students. Their findings showed that structured culinary learning activities improve students' understanding of cooking techniques and food preparation processes.

These studies suggest that knowledge plays a vital role in helping students understand culinary concepts and apply them effectively during cooking activities.

Skills in Culinary Learning

Skills refer to the ability to perform tasks effectively through practice and experience. In culinary education, skills include food preparation techniques, knife handling, cooking methods, and kitchen organization.

Research on gastronomy education shows that hands-on learning experiences are essential for developing culinary competencies. Practical kitchen activities allow students to practice cooking techniques and gain confidence in performing culinary tasks.

According to Lughasin et. al. (2024), students who actively participate in cooking activities develop stronger culinary skills and demonstrate better performance in food preparation tasks. The study highlighted the importance of experiential learning in developing technical abilities in culinary education.

In addition, studies have shown that repeated practice and instructor guidance help students master culinary techniques and improve their efficiency in kitchen operations.

Attitude in Culinary Learning

Attitude refers to the behavior, motivation, and interest of students toward learning activities. In education, a positive learning attitude influences students' engagement, participation, and willingness to learn.

Studies have shown that students with positive attitudes toward culinary learning are more motivated to participate in cooking activities and develop their culinary competencies. Attitude also affects students' confidence in performing cooking tasks and their ability to work in a kitchen environment.

Research conducted by Lugnasin et. al. (2024) found that students' attitudes toward culinary learning significantly influences their confidence and performance in cooking activities. Students who show enthusiasm and interest in culinary tasks tend to develop stronger culinary competencies.

Furthermore, positive attitudes toward learning encourage students to practice regularly and improve their culinary knowledge and skills.

III. THEORETICAL FRAMEWORK

framework of the study presents the relationship between the variables being examined. It illustrates how the profile of the respondents and the challenges in learning Culinary Fundamentals are analyzed to provide a basis for improving learning strategies in culinary education.

The input of the study consists of the demographic profile of the respondents in terms of sex and age, as well as the challenges encountered in learning culinary

competencies in terms of knowledge, skills, and attitude.

The process involves the use of a survey questionnaire to collect data from the respondents. The gathered data are analyzed using statistical tools such as frequency distribution, percentage, weighted mean, and analysis of variance (ANOVA).

The output of the study is the identification of learning challenges experienced by students, which may serve as a basis for improving learning strategies in Culinary Fundamentals.

Figure number 1 presents the conceptual framework of the study. In the input box, the variable includes the profile of the respondents. It contains sex, and age. Aside from the profile of the respondents, it also involves the challenges in learning culinary fundamentals competencies in a flexible learning among hospitality management students when it comes to knowledge, skills, and attitude with the use of questionnaires.

The process box covers the use of different statistical tools such as mean, percentage, Cronbach's alpha, and ANOVA. And the output box presents the objective of the study which is the basis for improving learning strategies in culinary fundamentals.

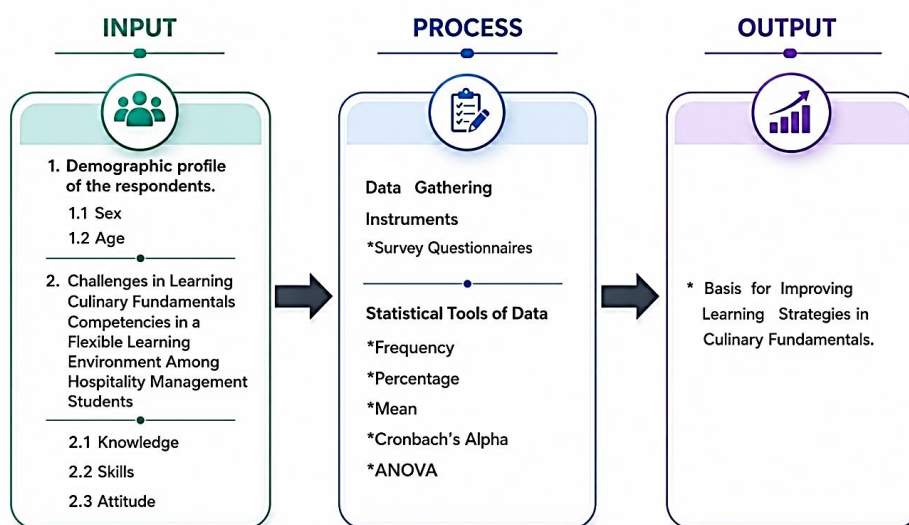


Figure 1. Conceptual Paradigm of the Study

Being aware of the challenges makes us stronger, it develops resistance, which generates inner strength. Students get stronger and stronger as they face problems. Challenges provide an excellent opportunity for personal growth. Challenges put courage and dedication to the students' goals to the test and will gain emotional and mental strength when they conquer them (Duckworth, 2016).

IV. METHODOLOGY

This study used the descriptive approach to execute a quantitative research study to identify the challenges in learning culinary fundamentals competencies in a flexible learning environment among hospitality management students using ANOVA test and Likert scale. The respondents of the study were one hundred fifty (150) Hospitality Management students from President Ramon Magsaysay State University – Main Campus, Iba, Zambales. The researchers gave the survey questionnaires to the students to gather data and to get feedback about the challenges in learning culinary fundamentals competencies in a flexible learning environment among hospitality management students. This study used a researcher-made questionnaire as the primary instrument for data collection. The questionnaire consisted of two parts: Part I – demographic profile of the respondents: Part II – challenges in learning Culinary Fundamentals in terms of knowledge, skills, and attitude. This study did a pilot test on the questionnaires that have been distributed to the fifteen (15) selected respondents to know if the survey questions will be effective and can proceed to the data analysis and data interpretations.

SPSS or Statistical for Psychological Software System was employed in this study. If the calculated P or significant value is more than ($>$) 0.005, the null hypothesis is accepted, indicating that no significant difference exists. If the estimated P value is less than ($<$) 0.005 Alpha level of significance, the Null Hypothesis is rejected, indicating that there is a meaningful difference.

V. RESULTS AND DISCUSSION

1. Frequency and Percentage Distribution of the Respondents' Profile

Out of 150 respondents, the majority, 92 (61.30%), were female, whereas 58 (38.70%) were male. The findings suggest that females represented the larger portion of learners who faced challenges in acquiring culinary competencies in a flexible learning environment. This aligns with studies that indicate women increasingly occupy productive roles in culinary education and the hospitality industry (French et al., 2024).

The majority of respondents (126, 84.00%) were 21–22 years old, 13 (8.70%) were 23 years and above, and 11 (7.30%) were 19–20 years old. The computed mean age of the respondents was 21.48, indicating that young adults are the predominant learners encountering challenges in acquiring culinary skills remotely. According to Luginasin et al. (2024), young adult learners tend to be receptive to self-directed and technology-enhanced learning but still face difficulties mastering practical culinary competencies online.

Table 1. Frequency and Percentage Distribution of the Respondents' Profile

Profile Variables		Frequency (f)	Percentage (%)
Sex	Male	58	38.70
	Female	92	61.30
	Total	150	100.00
Age	19 - 20 year's old	11	7.30
	21 - 22 year's old	126	84.00
	23 and above	13	8.70
Mean = 21.48		Total	150
			100.00

2. Perception of the Respondents on the Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students as to Knowledge

The respondents perceived “Often a Challenge” on remembering the lessons that have been tackled with weighted mean of 2.99 and ranked 1st, developing critical thinking skills with weighted mean of 2.93.

The findings showed that difficulties with memory, critical thinking, choosing the appropriate information from the internet, responding to unclear clarifications or questions, applying what was learned in class to real-world situations, learning from researched topics,

and comprehending the less obvious are frequently encountered when learning culinary fundamentals competencies in a flexible learning environment among hospitality management students.

Respondents perceived remembering lessons, developing critical thinking, and selecting appropriate information online as the top knowledge-related challenges. These results reflect the difficulties learners face in applying theory to practice without immediate instructor support (Soliman & Gabutin, 2025). The findings underscore the importance of experiential learning strategies that allow learners to engage actively with materials, as emphasized in Kolb’s (1984) experiential learning theory.

Table 2. Perception of the Respondents on the Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students as to Knowledge

	Knowledge	Weighted Mean	Qualitative Interpretation	Rank
1	Remembering the lessons that have been tackled.	2.99	Often a Challenge	1
2	Developing critical thinking skills.	2.93	Often a Challenge	2
3	Answering unsolved clarifications, queries, or questions.	2.86	Often a Challenge	4.5
4	Understanding the lesson easily.	2.77	Often a Challenge	7
5	Learning from researched topics.	2.83	Often a Challenge	6
6	Selecting the right information from the internet.	2.89	Often a Challenge	3
7	Applying in real life the things learned in class.	2.86	Often a Challenge	4.5
	Overall Weighted Mean	2.88	Often a Challenge	

3. Perception of the Respondents on the Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students as to Skills The respondents perceived “Often a Challenge” on utilizing time and managing workload efficiently and independently with weighted mean of 3.01 and ranked 1st, applying concepts from the lecture to the given tasks with weighted mean of 2.94.

The results show that learning culinary fundamentals competencies in a flexible learning environment is frequently difficult due to issues with managing workload effectively and independently, applying lecture concepts to the tasks given, developing online

communication skills, completing the task, and performing skill-based tasks using technologies.

The respondents identified time management, applying lecture concepts, and online communication as the primary skill-related challenges.

This aligns with findings by Bates (2019), who highlights the need for digital competence and structured online instruction to develop practical skills effectively.

Similarly, French et al. (2024) note that hands-on practice in a teaching kitchen or guided online environment improves cooking self-efficacy and skill retention.

Table 3. Perception of the Respondents on the Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students as to Skills

	Skills	Weighted Mean	Qualitative Interpretation	Rank
1	Completing the task in home-based learning.	2.92	Often a Challenge	4
2	Utilizing time and managing workload efficiently and independently.	3.01	Often a Challenge	1
3	Performing skill-based tasks using technologies.	2.83	Often a Challenge	7
4	Setting a routine to keep focused and stick with it.	2.91	Often a Challenge	5.5
5	Improving communication skills online.	2.93	Often a Challenge	3
6	Applying concepts from the lecture to the given tasks.	2.94	Often a Challenge	2
7	Encouraging everyone to perform well towards the same goal.	2.91	Often a Challenge	5.5
	Overall Weighted Mean	2.92	Often a Challenge	

4. Perception of the Respondents on the Challenges in Learning Culinary Fundamentals Competencies in a Flexible Environment Among Hospitality Management Students as to Attitude

The respondents perceived “Often a Challenge” on staying focused despite the presence of neighbors or family members with weighted mean of 3.04 and ranked 1st.

According to the findings, maintaining concentration in the presence of family members, evaluating questions and making adjustments, paying close attention to the instructor's explanations, disciplining oneself to complete laboratory tasks on time,

participating in class activities at all times, and studying alone increases confidence in one's abilities are some of the frequently encountered challenges in learning culinary fundamentals competencies in a flexible environment among hospitality management students.

Maintaining focus and self-discipline while learning at home emerged as the primary attitude-related challenge. Duckworth (2016) emphasizes the importance of perseverance and self-regulation in overcoming such barriers. Additionally, Lagnasin et al. (2024) indicate that positive learner attitudes toward technology-mediated instruction significantly influence engagement and self-efficacy in cooking.

Table 4. Perception of the Respondents on the Challenges in Learning Culinary Fundamentals Competencies in a Flexible Environment Among Hospitality Management Students as to Attitude

	Attitude	Weighted Mean	Qualitative Interpretation	Rank
1	Evaluating questions and making adjustments.	2.99	Often a Challenge	2
2	Participating in class activities at all times.	2.85	Often a Challenge	6

3	Staying focused despite the presence of neighbors or family members.	3.04	Often a Challenge	1
4	Paying close attention to the details given by the instructor.	2.95	Often a Challenge	3
5	Socializing easily with colleagues.	2.83	Often a Challenge	7
6	Disciplining self to finish laboratory tasks on time.	2.90	Often a Challenge	4
7	Studying alone boosts confidence in expressing oneself.	2.89	Often a Challenge	5
	Overall Weighted Mean	2.92	Often a Challenge	

5. Summary Table on the Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students

The grand mean of 2.91 shows that learning culinary fundamentals remotely is generally “Often a Challenge” across knowledge, skills, and attitude.

Soliman & Gabutin (2025) and French et al. (2024) stress that well-designed, technology-enabled instruction and practical learning opportunities are essential to mitigate these challenges.

Table 5. Summary Table on the Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students

	Challenges in Learning the Competencies in Culinary Fundamentals	Overall Weighted Mean	Qualitative Interpretation	Rank
1	Knowledge	2.88	Often a Challenge	3
2	Skills	2.92	Often a Challenge	1.5
3	Attitude	2.92	Often a Challenge	1.5
	Grand Mean	2.91	Often a Challenge	

6. Test of Differences in Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students when grouped according to Profile Variables.

The computed value of 0.626 for sex, and 0.814 for age was greater than $>$ the 0.05 Alpha level of significance, therefore, the null hypothesis was accepted, hence, there is no significant difference in the challenges in learning the competencies in culinary

fundamentals through home-based instruction as to knowledge when grouped according to profile variables. The results demonstrated that regardless of sex and age, learning the fundamental skills of culinary at home is not challenging.

No significant differences in knowledge challenges were observed across sex or age. This suggests that the difficulty in mastering culinary knowledge at home is consistent regardless of demographic variables (World Association of Chefs’ Societies, 2020).

Table 6. Analysis of Variance to test difference on the Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students as to Knowledge when grouped according to profile variables

Sources of Variations		SS	df	MS	F	Sig.	Decision
Sex	Between Groups	0.102	1	0.102	0.239	0.626	Accept Ho
	Within Groups	63.338	148	0.428			
	Total	63.441	149				Not Significant
Age	Between Groups	0.177	2	0.089	0.206	0.814	Accept Ho
	Within Groups	63.264	147	0.430			
	Total	63.441	149				Not Significant

7. Analysis of Variance to test difference on Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students as to Skills when grouped according to profile variables

Skill-related challenges also did not significantly vary across sex or age. This emphasizes the importance of integrating competency-based approaches and digital literacy support for all learners (Frank, Snell, & ten Cate, 2010).

Table 7. Analysis of Variance to test difference on Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students as to Skills when grouped according to profile variables

Sources of Variations		SS	df	MS	F	Sig.	Decision
Sex	Between Groups	0.034	1	0.034	0.080	0.778	Accept Ho
	Within Groups	62.971	148	0.425			
	Total	63.005	149				Not Significant
Age	Between Groups	0.301	2	0.150	0.352	0.704	Accept Ho
	Within Groups	62.705	147	0.427			
	Total	63.005	149				Not Significant

8. Analysis of Variance to test difference on the Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students as to Attitude when grouped according to profile variables

The computed value of 0.936 for sex, and 0.411 for age was greater than $>$ the 0.05 Alpha level of significance, therefore, the null hypothesis was accepted, hence, there is no significant difference in the challenges in learning the competencies in culinary fundamentals through home-based instruction as to attitude when grouped according to profile variables.

The findings showed that the fundamentals of culinary at home is often challenging in terms of attitude, regardless of sex or age.

Attitude becomes a significant obstacle when low-achieving students typically lack the self-discipline to naturally participate in class and professors have little control over these students.

Similarly, attitude-related challenges were consistent across demographic variables, highlighting the role of learner motivation and self-regulation in home-based culinary instruction (Duckworth, 2016; Bates, 2019).

Table 8. Analysis of Variance to test difference on the Challenges in Learning Culinary Fundamentals Competencies in a Flexible Learning Environment Among Hospitality Management Students as to Attitude when grouped according to profile variables

Sources of Variations		SS	df	MS	F	Sig.	Decision
Sex	Between Groups	0.003	1	0.003	0.006	0.936	Accept Ho
	Within Groups	69.572	148	0.470			
	Total	69.575	149				Not Significant
Age	Between Groups	0.836	2	0.418	0.894	0.411	Accept Ho
	Within Groups	68.739	147	0.468			
	Total	69.575	149				Not Significant

VI. CONCLUSIONS AND RECOMMENDATIONS

Based on the summary of the investigations conducted, the researchers have concluded that the majority of respondents were young adult females. The respondents perceived “Often a Challenge” on knowledge, skills, and attitude on the challenges of learning culinary fundamentals competencies in a flexible learning environment among hospitality management students and this implies that it can be difficult to learn the fundamentals of culinary through flexible learning when it comes to knowledge, skills, and attitude. And the respondents perceived no significant difference in knowledge, skills, and attitude in the challenges of learning culinary fundamentals competencies in a flexible learning environment among hospitality management students when grouped according to profile variables.

This study humbly recommends that instructors may provide varied instructional strategies and practical activities to enhance students’ learning experiences. Students should engage in regular practice to improve their culinary skills. Educational institutions may provide additional learning resources and facilities for culinary training. And future researchers may conduct similar studies with a larger number of respondents.

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