Game of Banquets: Enhancing Practical Culinary Education Through Gamified Learning Strategies

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Abstract

This study investigates the potential of innovative course designs in practical culinary education. The primary aim is to determine whether integrating learning strategies and gamification can improve professional and social outcomes for students. The research addresses key questions regarding the strengths, weaknesses, opportunities, and threats of an exemplified design from both student and teacher perspectives, the impact on professional competences and 21st-century skills, and student evaluations of the project.

Adopting a constructivist paradigm and a phenomenological approach, the study employs a mixed-methods methodology to triangulate qualitative and quantitative data. The course, implemented over 12 weeks, incorporates Problem-Oriented Design-Based Learning (PODBL) and gamification elements. Findings indicate that this approach significantly enhances student engagement, motivation, and the development of critical skills such as teamwork, problem-solving, and adaptability. The real-world context of the projects bridges the gap between theoretical knowledge and practical application, providing valuable practical experience.

Despite the positive outcomes, challenges include the need for careful planning, resource allocation, and overcoming resistance to non-traditional teaching methods. The study concludes that gamified learning strategies hold promise for vocational education, offering a dynamic and engaging alternative to traditional methods. Future research should explore the long-term impacts of such approaches and refine gamification elements to further enhance their effectiveness.

Keywords: Culinary, Education, Learning, Course design

1. INTRODUCTION

Vocational education is evolving, shifting from traditional models to innovative approaches that integrate core subjects with critical 21st-century themes (Fadel & Trilling, 2009). This transformation is particularly evident in culinary education, where competence is seen as a dynamic product of collective learning within educational and workplace environments (Sánchez-Jofras & Kuri-Alonso, 2019).

Various learning strategies have been implemented to foster critical thinking, creativity, and problem-solving skills among students. These include think-pair-share, dotmocracy, and personal reflection (Bishop-Williams, 2020), Problem-Based Learning (PBL) (Ulger, 2018), Design-Based Science (DBS) and Design-Based Learning (DBL) (Chandrasekaran, 2014; Puente et al., 2013; Fortus et al., 2004), and Project-Based Learning (PBL) and Project-Oriented Design-Based Learning (PODBL) (Chandrasekaran et al., 2013; Bell, 2010). Gamified pedagogy is another innovative method that enhances learning outcomes by allowing students to think from different perspectives, practice with different methods, and make mistakes

without embarrassment (Marchenko et al., 2023; Prosalova et al., 2022; Han, 2015; Markopoulos et al., 2015). Despite these promising developments, more experimental and empirical studies are still scarce, especially within the context of culinary education (Tripney et al., 2013).

The question of this research is "Can practical culinary courses be innovatively designed by using learning strategies, and gamified to improve professional and social outcomes?". In order to answer this question, some step questions were utilized:

1. What are the strengths, weaknesses, opportunities, and threats associated with this design from both student and teacher perspectives?
2. Can a well-designed course significantly improve the professional competences and 21st-century skills among students?
3. How do students evaluate the designed project?

The hypotheses of this study posit that practical courses, when designed with real-life projects and gamification, will enhance students' learning experiences and overall satisfaction.

The primary aim is to explore the applicability of innovative course designs in practical culinary education. By implementing a 12-week project-based approach with elements of Problem-Oriented Design-Based Learning (PODBL) and gamification, it is intended to comprehensively address the research questions. This study contributes valuable evidence to the literature on learning strategies, informs instructional practices, and sheds light on the practical applicability of innovative designs in culinary education.

2. THEORETICAL BACKGROUND

In this section, hands-on-training courses in culinary education will be held as gamified designs enhancing the service quality of institutions.

2.1.Practical Courses in Culinary Education

Practical courses in culinary education hold immense significance for the development of culinary competence. These courses seamlessly blend practical experience with theoretical knowledge, fostering both practical and cognitive skills (Kolb & Kolb, 2005). By emphasizing a hands-on approach, culinary education promotes innovation, creativity, and continuous learning—aligning with the dynamic realities of the gastronomy industry. As future chefs engage in relevant situations, their competence evolves through integrated learning (Sánchez-Jofras & Kuri-Alonso, 2019).

Experiential learning lies at the heart of effective culinary education. It engages learners in a cyclical process that encompasses experiencing, reflecting, thinking, and acting. Through active engagement with their environment, learners construct knowledge by integrating new information with existing understanding. Practical application becomes a conduit for deeper comprehension (Kolb & Kolb, 2005). Moreover, guidance of practice allows learners to gradually assume greater responsibility and tackle more demanding tasks as their skills evolve (Mikkonen et al., 2017).

In the modern educational landscape, the infusion of 21st-century skills into practical lessons represents a pivotal shift away from rote memorization. Culinary educators, now, embrace dynamic, interdisciplinary approaches (Fadel & Trilling, 2009). The effectiveness of lecturers' hinges on their professional capabilities and the learning environment they create. These factors collectively contribute to overall teaching quality, impacting students' knowledge acquisition and learning experiences (Muhsin et al., 2019). Reflection on practice has gradually transformed pedagogical perspectives—from teacher-centered to learner-centered. The testing and application of theoretical concepts in practical settings have led to a more nuanced and confident teacher identity. This comprehensive reflective process plays a pivotal role in

advancing classroom practices and enhancing overall teaching efficacy (Kerwin-Boudreau & Butler-Kisber, 2016).

Despite these advancements, there is growing recognition of the need for problem-solving skills in culinary arts education. Employers express dissatisfaction with graduates' problem-solving abilities, highlighting a gap in the current curriculum that tends to prioritize technical skills (Techanamurthy et al., 2018). Work-Integrated Learning (WIL) strategies emerge as valuable contributors to students' skill development. These strategies enhance general academic performance, interdisciplinary thinking, motivation, communication, teamwork, leadership, and cooperation (Kay et al., 2019; Winberg et al., 2011).

In summary, practical courses in culinary education play a pivotal role in developing culinary competence, fostering 21st-century skills, enhancing problem-solving abilities, and preparing students for real-world challenges in the culinary field. The next section will delve into one such learning strategy within this context.

2.2.Project-oriented design-based learning

POPBL is a progressive educational approach that shifts from traditional teaching methods to student-centered and interdisciplinary initiatives. It transforms the teacher's role from merely transferring knowledge to facilitating students' learning journeys (Mikkonen et al., 2017; Chandrasekaran et al., 2014).

"*Project Oriented Learning (POL) is basically "learning by doing" whereby students will acquire knowledge while undertaking design project/s* (Awang, 2007, p. 292)". It is linked to deeper, more analytically complex understanding (Kolmos, 2003), including challenges (Long et al., 2017). Data analysis revealed four PBL principles: (a) adaptable knowledge and skills; (b) proactive metacognitive thinking; (c) intrinsically motivated teamwork; and (d) real-world problem contexts (Chandrasekaran et al., 2014). Design-based learning (DBL) is a significant strategy within this framework, requiring students to apply their theoretical knowledge to develop an artifact or system to tackle a real-life problem. It develops students' metacognitive skills and enables them to see objects beyond their physical appearances (Azizan & Shamsi, 2022; Puente et al., 2011, 2013). This approach enhances creativity and allows students to think outside the box, contributing to easy access to learning.

Project Oriented Design Based Learning, a form of DBL which is a pedagogy designing artifact contexts (Fortus et al., 2004), has been found to positively impact student content knowledge and the development of skills such as collaboration, critical thinking, creativity, innovation, and problem-solving, thus increasing their motivation and engagement (Arisoy et al., 2014).

The POPBL curriculum, adhering to Project-Based Learning (PBL) principles, aims to develop essential competencies such as problem-solving, project management, planning, and contextual analysis. This method makes education more engaging and relevant, preparing students to tackle real-world challenges effectively. It promotes lifelong learning and adaptability in changing environments (Chandrasekaran et al., 2013; Bell, 2010). Instructors play a crucial role in this process, navigating the boundaries between academic knowledge, educational practices, and professional application to enhance student learning and readiness for their future careers (Winberg et al., 2011). Regular communication, feedback, and critical discourse by instructors enhance student performance and retention (Kim & Kim, 2021).

In conclusion, these learning strategies provide a robust theoretical foundation emphasizing the importance of a practical, student-centered approach to learning in the field of culinary education.

2.3.Gamification in Practical Education

Gamification in education, as a potent tool, enhances learning experiences by utilizing game mechanics. It boosts motivation, facilitates knowledge acquisition, improves homework self-control, expands vocabulary, aids in overcoming language barriers, and fosters positive socialization in class settings. The application of gamification techniques has been observed to consistently elevate students' motivation. The range and adaptability of games and game technologies hinge solely on the teacher's proficiency in communication and information technologies (Deutsch, 2014; Kovalenko & Skvortsova, 2022).

Simulation games, which simulate the handling and controlling of real-world objects, are used to train professionals of various technical fields and are quite fitting for technical education. The benefits of successfully gamifying the classroom environment may include students feeling that they own and control their learning, the infusion of fun and joy in the classroom, and the provision of different students with different avenues to knowledge (Markopoulos et al., 2015).

In this context, the main scene is action. The student or a group of students needs to perform a task to achieve the goal. This orients students to honest and fair assessment, feedback from the teacher, and achievement of a positive result (Prosalova et al., 2022). The teacher should carefully consider the procedure for using traditional and interactive teaching methods, as overuse of the latter can lead to a decrease in motivation (Marchenko et al., 2023). Anderson's Interaction Equivalency Theorem suggests that learning effectiveness is achieved with high levels of student-content, student-teacher, or student-student interactions (Turley & Graham, 2019).

In conclusion, the use of gamification emphasizes the importance of an engaging, student-centered approach to learning. The gamified and designed practical courses not only equips students with the necessary knowledge and skills to address real-world problems but also promotes lifelong learning and adaptability in changing environments.

3. METHODOLOGY

In this study, the innovative design of practical courses in culinary education was explored, aiming to enhance professional and social outcomes. The *research paradigm* aligns with a constructivist perspective, emphasizing the active role of learners in constructing knowledge through meaningful experiences (Kaushik & Walsh, 2019; Mezmir, 2020; Mulisa, 2021). As culinary education involves practical skills and real-world contexts, constructivism provides a suitable lens for understanding how students engage with course content, learning strategies, and gamified elements.

This study takes a *phenomenological approach*, focusing on the essence of lived experiences. Researchers explore how individuals make meaning of specific events or phenomena (Kegler et al., 2019). The applicability of the designed and gamified practical course for culinary education was analyzed by examining the perspectives of participants and the facilitator. Triangulating these multiple data sources enhances reliability and provides a holistic understanding (Green & Browne, 2005).

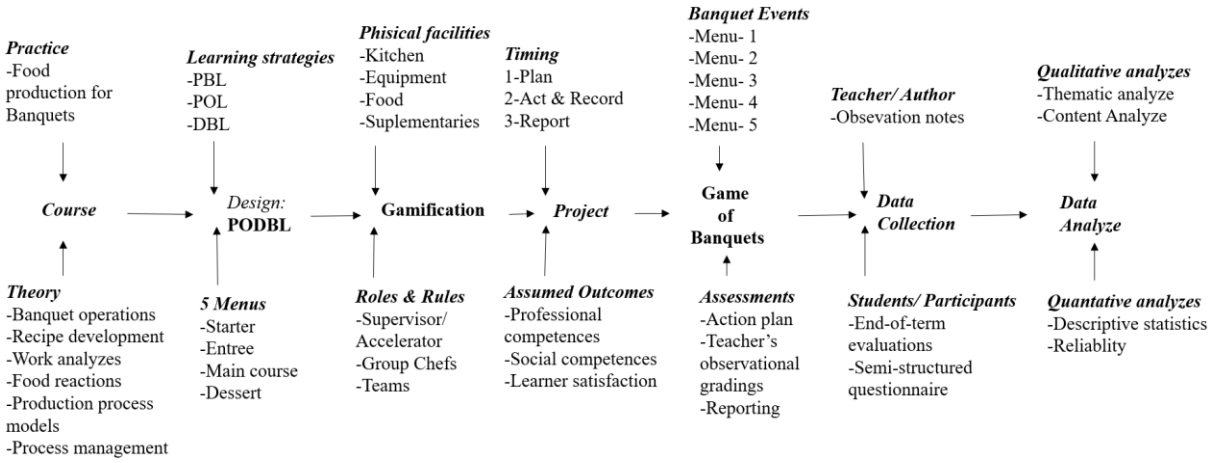
To address the multifaceted nature of the research questions, a *mixed-methods approach* was employed. This allows triangulating data from various sources, combining qualitative insights with quantitative measurements (Gelo et al., 2008). Integrating both exploratory (thematic, content) and confirmatory (statistical) elements provides a holistic understanding of the impact of innovative course design on student learning and satisfaction. Triangulation enriches the research data, ensuring robust findings.

The researcher's dual experience—both sectoral (6 years) and academic (12 years) in culinary—allowed viewing the phenomena from both micro and macro perspectives. This comprehensive engagement with the data supported the investigation at every stage.

3.1. Research Design

Desing a practical course (Banquet Kitchen in this study) involves theory and practical ingredients, with the project-oriented and design-based learning (PODBL) strategies and menus as titles of the projects (student purposes). This course design was improved with the gamification by planning with physical facilities and rules and roles. The planning side of the project was completed with timing and assumed outcomes (project purposes). The data from both facilitator and the students were collected and analyzed via mixed methods. The design of the research is given in the Figure: 1.

Figure 1: Research Design



3.2 The Project

The gamified project design methodology of the course model is grounded in key principles. It adopts a design-based research process involving five phases: problem identification, objective definition, design and development, demonstration and reflection, and communication and evaluation (Azizan & Shamsi, 2022). The process employs a spiral curriculum, introducing students to simpler tasks before moving on to more complex ones, reducing fear and increasing comfort with the process (Han, 2015). It also incorporates Design-Based Learning (DBL) principles, including project characteristics, the role of the teacher, assessment methods, and social context (Puente et al., 2013). The design also considers the role of the teacher as a leader in curriculum planning, peer mentoring, assessment design, and data analysis (Chandrasekaran et al., 2015). It employs the "Seven Step" method to help students analyze problems: 1. clarify the concepts; 2. define the problem; 3. analyze the problem; 4. find the explanation; 5. formulate the learning objective; 6. search for further information; and 7. report and test new information (Kolmos, 2003), and addresses relevant issues in object-oriented programming (OOP) through the use of active learning techniques and early introduction of the object-oriented paradigm (Gutierrez et al., 2022). Finally, the study uses a five-dimensional classification framework– requirements activity, problem class, outcome class, type of research, type of publication – to provide insights into the state-of-the-art and maturity of the research, and identifies research gaps to be addressed (Amna & Poels, 2022).

The design of the project is explained below, under the headings of assumed outcomes/competences, course content, the menu, game mechanics, and assessment.

3.2.1. Assumed Outcomes / Competences

The assumed outcomes / competences for the "Game of Banquets" project were designed to align with both vocational education outcomes and essential 21st-century skills. The

comprehensive list includes critical thinking, problem-solving, creativity, communication, collaboration, and information literacy, which are crucial for success in modern vocational settings (Facione, 2011; Fadel & Trilling, 2009). Additionally, the inclusion of digital literacy and sustainability practices ensures that students are prepared for the evolving demands of the workforce (Eisenberg & Berkowitz, 1990). Emotional intelligence competencies, such as empathy and conflict resolution, are also emphasized to enhance teamwork and leadership (Pulakos et al., 2000). By integrating these skills, the project aimed to develop well-rounded individuals who can adapt to various professional contexts and contribute effectively to their fields. This approach not only addresses the current gaps in culinary education but also fosters a holistic learning environment that prepares students for real-world challenges (Robinson, 2011; Sawyer, 2012).

Assumed outcomes about *professional (culinary) skills* like contain recipe development (ability to synthesize, vocational knowledge, information literacy, creative thinking, technical writing, international terminology), cooking techniques (technical, attention to detail, process understanding, scientific literacy, industry practices) and presentation techniques (innovation, creative thinking, evaluation, presentation skills, cultural awareness), and kitchen management (leadership, resource allocation, organizational skills, project management, time management, quality control, logistical planning, team coordination). Assumed *21st century skills* contain *engagement* (association, identifying, reflection, interpersonal skills), problem solving (critical thinking, inquiring, analyzing, synthesizing, evaluation), communication (peer to peer interaction, collaboration, dotmocracy, respect for diversity, team work), and real-life experience (industry practices, adaptability, decision making, systems thinking, quality assurance). These outcomes effected the way of thinking when designing project elements like course content, menu, game mechanics, and assessment.

3.2.2. Course Content

The "Game of Banquets" course is designed to explore innovative approaches to practical culinary education through the use of learning strategies and gamification. The course is structured into three distinct stages, each comprising several weeks, with specific steps and activities outlined for each week. The detailed course content is presented in the Table: 1, which provides a comprehensive overview of the curriculum.

Stage 1: Planning. This initial stage focuses on the foundational aspects of banquet event planning and preparation. Over the course of five weeks, students will engage in activities ranging from understanding the development phases of banquet events to detailed recipe development and production process modeling. Key components include resource management, risk and crisis management, and mid-term assessments to ensure thorough preparation.

Stage 2: Acting (Marching). During this stage, spanning weeks six to ten, students will actively participate in the production of menus. This hands-on experience involves managing production, supervising tasks, and overcoming challenges. Students will also document their observations and ensure the production area is maintained in a clean and orderly manner.

Stage 3: Documenting. The final stage, covering weeks eleven and twelve, involves the creation of an event report. Students will compare their initial action plans with their actual implementation experiences, converting these insights into a comprehensive and completed event report.

Table 1: Course Design of the Practical Lesson

Stages	Weeks	Steps	Scope / Inclusions / Requirements
Planning	1	Banquet events	Development phases of banquet events Food production and service differences
		The project	Introducing the learning strategy and previous experiences Sharing the plan for menus and timing Informing about the rules and roles of the game Casting (teams and groups)
	2	Recipe development	Introducing 15 example qualified sources (foreign language) Elaborating the items of five menus Discussions about the ingredients and procedure of the recipes
	3	Production	Work analyzes (demand forms, delivery, storage, preparing, cooking, serving, hygiene) Food reactions and transformations Process modelling
	4	Management	Resource and information management Risk and crisis management Human sources and relationship management Workload analyzes of events Documenting the process terminologically
	5	Action Plan (Mid-term assessment)	Recipes and procedures of all items in each course of the menus. Production process models for each course Work-load and flow plans
Acting (marching)	6-10	Menu- 1 Menu- 2 Menu- 3 Menu- 4 Menu- 5	Be a component of the production Managing the production (direct, supervise) Job follow-up Face the challenges Taking notes (recording) in writing and with visuals Handover the production area clean and tidy
Documenting	11-12	Event report (End-term assessment)	Explaining the difference between action plan and the implementation experience Converting previous action plan to an experienced and completed event report

3.2.3. The Menu

The menu has been prepared by the author, with the mission of reflecting varieties of ingredients, preparing and cooking techniques, basic products and presentations. By cycling, each group members experience each course of the menu like starter, entrée, main course and dessert in the scope of game mechanics.

Table 2: Menus in the Course Design

Week	Starter	Entree	Main course	Dessert
1	French onion soup	Baked eggs Florentine- Celeriac rémoulade- Tomato sauce	Lamb leg roast- Creamy parmesan polenta- Balsamic pan sauce- Mixed herbs bouquets- Creamy vinaigrette	Profiteroles (pate choux - chocolate sauce- crème anglaise)- Caramelized hazelnut brittle- Fruits
2	Fish soup	Skillet burrito bowls- Deviled eggs	Chicken saltimbocca- Black rice pilaf- Curried cauliflower rice- Vinaigrette	Matcha custard- Sable crumbs- Fruits
3	Broccoli soup	Seared scallops with squash puree and sage butter	Chinese braised beef - Bulgur with chickpeas, spinach, and za'atar- Sautéed mushrooms with sesame and ginger- Parsley tempura	Chocolate soufflé- Nut buttercream- Tuille- Fruits

4	Chicken liver mousse- Mustard sabayon- Red pepper pickle	Cheese soufflé- Garlic bread	Oven roasted salmon- Mashed potatoes- Emulsified seafood sabayon- Tartar sauce- Steamed vegetable garnish	Pithiviers (almond galette)- Tahini cream- Pomegranate sauce- Frangipane
5	Fish tartare- Pizza dough crackers	Arancini- Sweet and sour chutney	Pepper crusted fillet mignons- Basmati rice with saffron- Steamed eggplant with sesame, scallions, and chili oil- Mornay sauce- -Tuille	Poached pear- Sponge cake- Chocolate sauce- Hazelnut praline

3.2.4. Game mechanics

Game mechanics mainly consist of casting and rules and roles:

Casting: There are two sections in the course, and 20 students in each course. There are two groups in one section, consisting 5 teams, 10 students. Teams positioned under two groups randomly, for each section.

Rules and Roles: Team members have right to choose each other, and this team stays the same during the course. They fulfil all the requirements of the course together and equally. Each team in the groups has cycling positions, means, teams have 1 chef and 4 member weeks.

For member weeks, their dishes in the menu changes like starter, entree, main course, dessert. Member teams are responsible to the chef team for their productions and presentations. The chef team is responsible from all the phases of gamified banquet events like; collecting recipes from member teams, preparing demand list with them, delivering the ingredients from supplier and store them till the lesson, organize member teams for the action, supervise them during the production, serving on time and in turn, and handing over the kitchen for the next courses. That team reports to the teacher about the problems they face and the irresponsibility of their group members.

The chef teams of the two groups in the section should coordinate and act simultaneously because of both common use equipment like oven, and declared serving time. These common obligations and timing trigger the rivalry by presenting many points to check the other and themselves.

Meal presentations of both groups are done at the same time and in a declared turn. As presented people, the teacher invites two panelists to give their consumer opinions about the courses, beside the technical evaluation of the teacher. The chef teams and the producer team of that course are also there with juries to explain the job, answer the questions, and take the evaluations.

The teacher presents theorical background for the action plan until the mid-term assessment. When it comes to kitchen production after that, he communicates mostly with the chef teams in order to assist them and accelerate the management process. Out of the dangerous and big cost issues, the chef teams are free for their management decisions. The teacher pretends to be passive by presenting freedom to chefs to operate the action and the group. Teacher is always around, shows some specific food fabrications by-doing, follow up the operational flow, answer the questions. During the production, visits all student stations. Even if he sees something wrong, he addresses remarks to only the chef teams. The teacher takes notes during the courses about key points or issues effecting production process and the difficulties the students have. These notes also include evaluations about students about their responsibility fulfilment, technical applications, interaction and coherence.

Teams can send the same homework for both the mid and end term assessments. In this condition, they have the same grade. But, if they wish, they can send separately, either.

3.2.5. Assessing

Evaluating occupational skills should involve a set of key principles designed to ensure the assessments are valid, reliable, and relevant. These principles can ensure comprehensiveness to measure the level of occupational competence of students (Munyofu, 2007). In the "Game of Banquets" project, the assessment technique is designed to be comprehensive and authentic, moving beyond traditional standardized testing to measure a wide range of skills and competencies developed through Project-Based Learning. This approach aligns with the goal of preparing students not only academically but also as productive, innovative members of society (Bell, 2010). The assessment technique integrates a broad set of skills that prepare students for the realities of today's workforce and society (Silva, 2009) like given in the Table: 1. It goes beyond tests and examinations, focusing on the preparation, acting and reporting knowledge and skills (Awang, 2007). The assessment includes a mix of individual and team items, considering elements such as teamwork, problem-solving, creativity, and innovation as mentioned by Long et al. (2017).

The project incorporates a comprehensive assessment dimension that evaluates students' progress across three main parts: Action Plan 40%, Action performance 20%, and Reporting 40%.

*1. Action Plan Assessment***:** For the mid-term assessment, students are evaluated for their ability to apply the concepts learned during these weeks. Their understanding of banquet event development, recipe creation, production processes, and effective management are also considered. They were encouraged to demonstrate practical skills, critical thinking, and attention to detail. Additionally, they are supposed to reflect their ability to communicate using appropriate culinary terminology with the ways of tables or shapes. The mid-term assessment was in the form of written plans consisting the simulation and modelling of the production.

Criteria for Assessment:

- Ability to research and synthesize information from qualified sources.
- Elaboration on menu items and recipe procedures.
- Effective work analysis (demand, storage, preparation, hygiene, etc.).
- Understanding food reactions and transformations.
- Creating process models.
- Work-load and flow plans.

2. Action Performance Assessment: At this part of the project, the assessment is made via notes from teacher's observation. By incorporating observational assessment, students are encouraged to apply theoretical knowledge in practical contexts, fostering a holistic understanding of banquet kitchen operations. This aligns with the broader goal of vocational education: preparing students for real-world challenges and diverse professional environments. With the assessment criteria given below, students are evaluated on their planning, execution, and reflection skills, providing a holistic view of their performance and learning outcomes in the project.

Criteria for Assessment:

- Active participation: Is the student actively involved in the production process?
- Leadership and management: How effectively does the student manage the production area, supervise tasks, and address challenges?
- Attention to detail: Does the student follow hygiene protocols and ensure a clean and organized production area?
- Communication: How well does the student interact with peers and communicate instructions?

- Problem-solving: How does the student handle unexpected situations during production?
- Creativity: Does the student demonstrate innovative approaches to food preparation?
- Documentation: Is the student taking accurate notes (both written and visual) during the process?
- Respect for diversity: How does the student collaborate with diverse team members?

3. Reporting Assessment: In this final stage, students demonstrate their ability to document and reflect on the entire banquet kitchen project. The focus is on converting their initial action plan into a comprehensive event report. By completing this, students showcase their holistic understanding of the banquet kitchen project, bridging theory and practice. The event report serves as a valuable resource for future reference and continuous improvement in culinary education.

Criteria for Assessment:

- Reflective Practice: This assessment aligns with reflective practice principles. Students critically evaluate their actions, draw conclusions, and document their experiences.
- Integration of Theory and Practice: By comparing the action plan with actual implementation, students demonstrate their ability to apply theoretical knowledge in practical scenarios.
- Communication Skills: The event report requires clear communication, attention to detail, and effective documentation.
- Competence Development: Competences in critical thinking, synthesis, and professional reporting.

3.3. Data collection

All researchers, regardless of the approach, need to engage in similar data collection activities like interviews and observations, use recording protocols, and develop forms for storing data (Creswell, 2013; Jamieson, 2016). In this study, the author involved in two data collection phases: observational notes taken during the project, and end-of-term evaluations of students. He wasn't involved the semi-structured questionnaire phase in order to avoid authority effect on students' replies.

When collecting data, it was aimed the data to be themed in SWOT (strong, weak, opportunity, threat) in order to see the pros and cons of the project systematically. SWOT analysis helps in identifying and analyzing the internal and external factors that can impact an organization or project. SWOT analysis helps in identifying areas of improvement and leveraging strengths to enhance educational outcomes (Helms & Nixon, 2010). In this study, it was used to measure the applicability of the course design and the satisfaction of the students, via qualitative data in teacher's notes, end-of-term evaluations, and open-ended question in semi-structured questionnaire. The Likert scale questions in the semi-structured questionnaire were planned to crosscheck the inferences from those qualitative data.

3.3.1. The sampling and saturation

This project applied in the scope of a practical course named "Banquet Kitchen" in Gastronomy and Culinary Art Program in Eskişehir Osmangazi University, in Türkiye, in 2024. 40 students in their 6th term consist the population of this study. Students are informed about the scope and aim of the project at the beginning of that term. And the ethical considerations about their data sharing were announced before data collection phase.

In phenomenology inquiry, the focus is more on depth rather than breadth, and measured the mean sample size for that is 20 participants (Guetterman, 2015). According to Creswell (2013), selecting a sample intentionally that can provide the most insight into the research question,

rather than aiming for a sample that can be generalized to the entire population. This includes determining the best strategy for purposeful sampling. In this study, participants are the students experienced a specialized design of well-known systematic learning strategies in the scope of a practical course. The size and the relation of sample increases the reliability and validity of data collected.

3.3.2. Teacher notes

Researchers can engage in data collection with or without direct contact with subjects, allowing for unobtrusive research methods (Hsieh & Shannon, 2005 as cited in Mezmir, 2020). *Observation* technique, reflects the need for in-depth exploration of individual experiences (Guetterman, 2015) and accelerates engaging with the group being studied. Field notes can be taken by researchers during fieldwork (Green & Browne, 2005). During the project, both in the theory and the practice phases, the author took notes from his observations about strong, weak sides, and opportunities and the threats of the designed course. The notes are coded in statements from the experiences of students like challenges, difficulties, comfort and gains. Taking notes systematically provided following-up the process. These notes also provided "back and fort"s between data, as explained by Busetto et al. (2020) and McMillan (2009), allowing new insights to inform ongoing observational data collection and possibly the revision of the research process. Additionally, these notes were used for comparing the data collected from students via different techniques.

Observational considerations:

1. How did the students effectively benefit from the project?
2. What should be included in the project to accelerate?
3. What are the developable sides of the project in order to support the students' learning process?
4. What are unnecessarily challenging for the students in the project?

3.3.3. End-of-term evaluations of students

The data was collected from the students in two different ways. First is the "end-of-survey" written evaluations, as Turley & Graham (2019) did. Students received an online invitation message with the survey participation ethic form, like Edens (2011). General evaluations of the students about the course design were requested via a self-completed form. With this time-giving form, it was aimed to have more detailed, deliberate and exemplified evaluations. The students were clearly informed that, this evaluation isn't included to the course grades. But anyhow their names were distinguishable for the author. In order to avoid from the authority effect, the third data collection via semi-structured questionnaire was applied by a different person out of the course. 36 students replied to the end-term-evaluations (ETEs).

3.3.4. Semi-Structured Questionnaire

The semi-structured questionnaire (SSQ) consists of four qualitative and ten quantitative questions. The *qualitative questions* aim to measure the multiple perspective evaluations in written with self-wording of the students. The SWOT (strong, weak, opportunities, threats) analyze is accepted for its multiple point of views. So, the qualitative open-ended questions ask for the evaluations of students from those points. The data collected with these questions was analyzed within, and compered to the data come from the notes of the teacher, as a provision. This provision helped evaluating the design of the project.

Open-ended survey questions:

1. What were the difficulties/challenges you have faced during the project?
2. What were the weak sides of the project?
3. What were the strong sides of the project?

4. What were the opportunities of the project for the practical lessons?

The *quantitative questions* have been intentionally designed to align with the assumed outcomes within the context of the "Game of Banquets" project, explained above. Each question has been intentionally crafted and dequantitated as much as possible to measure thematically. By quantitating, it was aimed not to bore the students, and give "in-time" reflections. The questions were 7 Likert scaled statements, given below.

"I felt engaged in the learning process with the 'Game of Banquets' project." This question directly probes students' level of engagement during the project. Engagement is a critical competence for active participation and effective learning. Students' positive feelings of involvement validate the project's success in fostering engagement.

"The project helped me improve my recipe development skills." Recipe development necessitates the ability to synthesize culinary knowledge. By assessing improvements in recipe development, the students' creative competences were indirectly measured.

"The project helped me improve my cooking techniques skills." Enhancing cooking techniques aligns with technical competence.

"The project helped me improve my presentation skills." This question evaluates students' professional creation and innovation abilities, emphasizing visualizing and implementing competences.

"The project helped me improve my management skills." Managing resources, time, and teams is essential in culinary projects. This question assesses students' growth in management competences, including leadership, resource allocation, collaboration, and cultural awareness.

"The project reflects the real-life elements of the culinary industry." The project's authenticity and alignment with industry practices contribute to students' exposure for adapting to real-world scenarios. This question validates the project's relevance and practical applicability.

"The project helped me improve my problem-solving skills." By assessing improvements in problem-solving skills, the students' critical thinking abilities were indirectly measured.

"The project helped me improve my communication skills." Clear communication, and dotmocracy are vital in culinary teamwork.

The last two questions are about the students' general evaluations about the project. *"The use of game elements enhanced my learning experience"* is used as one of the reference points about the satisfaction. This satisfaction is proved with the next question: *"I recommend this project for the next terms"*.

3.4. Data Analyze

As an analysis strategy, the analytical approaches, such as codes from observations, statements, and numbers, were combined to grasp the essence of the case as a whole. This included within-case and cross-case analyses, supporting the identification of themes that reflect the complexity of the participants' experiences (Casterlé et al., 2012). Mixed Methods Research (MMR) was preferred to mitigate the limitations inherent in relying solely on either quantitative or qualitative approaches effectively (Gelo et al., 2008). To understand the meaning of the project to the students, the qualitative data about their experiences were analyzed conceptually. Additionally, to identify patterns and relationships in the students' evaluations, the quantitative data were analyzed statistically (Green & Browne, 2005). It helped in testing and refining the practical course design model.

Qualitative data analysis is used for the classification and interpretation of linguistic material to make statements about implicit and explicit dimensions and structures of meaning-making in the material (Mezmir, 2020). In thematic analysis, the researcher's interpretation is placed on the participants' words (Jamieson, 2016). In this study, the qualitative data consisted of

teacher observations, ETEs of students, and the responses to open-ended questions in the SSQ. The content analysis method was used for these textual (qualitative) data. Before analyzing the content of the EVEs of students, each transcription was assigned code names to create a separate, secure document that links to the actual participants (anonymizing), as Jamieson (2016) suggested.

Qualitative Content Analysis (QCA) involves selecting appropriate units of analysis, creating categories that are both exclusive and exhaustive, and establishing themes that link categories coherently. The process includes both inductive and deductive methods for developing categories and is aimed at systematically extracting and describing meanings from the content under study (Mezmir, 2020). As Jamieson (2016) noted, researchers may have preconceived ideas about what they are seeking in the data and look for evidence to support these ideas. As Liamputtong (2009) suggested, in order be able to stay closer to the words of the participants for interpretive and nuanced analysis, coding was made by hand. As an accelerator of the project, throughout, observations of faculty could help catching more evidence to statements in evaluations. Statements or incidents about the outcomes like professional competences, 21st century skills and students' satisfaction in the qualitative data, collected under the headings of SWOT, were detected and themed under these outcomes. As categories, the Likert scaled questions in SSQ were used. This provided crosschecks between qualitative and quantitative data.

Quantitative analysis deals with 'factual' data that can be counted or measured, focusing on isolated and defined variables. It is used for determining what percentage of the population supports an idea, demographic distribution, survey statistics, and relationship analysis between variables (Hammarberg et al., 2016). In this study, the quantitative data were analyzed descriptively to understand the perceived benefits of the project and the satisfaction from it, with the percentage of the class. These descriptive statistics were used for crosschecks with the frequencies of quantitative data.

With this study, it was aimed to understand the pros and cons of the project. In order to evaluate strengths, weaknesses, opportunities, and threats comparatively, data were collected from two perspectives (students and faculty). After being analyzed separately, the inferences from the qualitative data were cross-checked with the quantitative data (from students), in order to explain the applicability of the project broadly.

3.4.1. Reliability and Validity

Triangulation, thorough data collection and fieldwork, prolonged engagement, persistent observation, and reflexivity are among the principles strengthen reliability and validity of research studies (Cope, 2014). *Triangulation* is not just about confirming results from different angles but about enriching the research by adding multiple layers of understanding, which, in turn, leads to more nuanced and reliable conclusions (Busetto et al., 2020; Green & Browne, 2005). It requires utilizing multiple data sources or data collection techniques to cross-verify the consistency and reliability of the findings (Tomaszewski et al., 2020). In this study, the data (qualitative, quantitative), data sources (students, faculty), data collection tools (observation notes, end-term evaluation textures, semi-structured questionnaire), and data analyze (mixed methods) were triangulated. Besides providing additional data, generating *field notes* (observations) accelerated capturing the context and nuances of the research setting. Building trust and rapport with informants (being a part of food production as a head chef) fostered rich and detailed responses *(prolonged engagement)*. The feelings or emotions of the informants or situation during the project were paid attention for *persistent observation*. The researcher's background could have been affected the research process (*reflexivity*). Also, when analyzing, it was opted to analyze the data by the researcher (Creswell et al., 2007) with his proficiency on culinary practices and education on this field. This relation can strengthen the data analyze

with the familiarity and immersing oneself in the data to understand its depth and breadth (Lester et al., 2020).

For the quantitative data, the *Cronbach alpha* values (*0,809* > 0,70) for the competences indicate that the data is reliable and supporting the validity of these findings. The use of both qualitative and quantitative data provided a comprehensive view of the project's applicability. This approach to data (from collection to analyze) ensures a robust and valuable insight into the practical course design and its effectiveness. It also aligns with the pragmatic research paradigm of the study, which values practical applications and real-world problem-solving.

4. FINDINGS AND DISCUSSIONS

The findings form the data collected from the students are given in the Table: 3. The codes of qualitative data are shown with the classifications of categories and themes, and their SWOT features. The frequencies of categories are seen with their quantitative scores (descriptive statistics) in order to make crosschecks. These crosschecks are evaluated and explained with the observation notes of the faculty in order to understand the phenomena deeper. Before commenting the table, it would be helpful to mention the frequency differences between the ETEs and SSQ. It was observed that the students were less reluctant to write longer about the SWOT of the project for the SSQ compared to ETEs. In other words, when given time and space they expressed their opinions detailed.

Findings are discussed below, under the professional competences, 21st century skills, and general evaluations as has been detailed under the "assumed outcomes/competences" heading, above.

4.1. Professional competences

Professional competence outcomes of the "Game of Banquets" project were measured in categories such as recipe development, cooking techniques, presentation techniques, and management.

Management was the most frequently mentioned category within this theme. Nearly half of these mentions highlighted its strengths, such as process management and leadership. For instance, P28 stated: "*The situation that you haven't interfered with the process much, presented us like managing the kitchen production on our own.*" However, other aspects like preparing/planning, time constraints, enforcement lacks, and reporting were identified as threats or challenges. P31 noted the inefficiency of the first weeks, adding, "*I know you like triggering the students in motion but I think we made some laziness* 😊." Enforcement lacks were particularly challenging for students in group work, as P3 expressed: "*However, we had the production responsibility at all costs, the reality of both sides (chef, members) being students was really restrictive when managing.*" The mean score for management (5.5556) was moderate, with a moderate-low standard deviation (1.10698) indicating low variability in student experiences. Observations showed that groups lacking team spirit faced significant coordination issues, affecting their working peace and the quality of their presented products, also noted by Azizan & Shamsi (2022). Conversely, groups with strong team spirit found the kitchen operation enjoyable. It was also noted that menu development could benefit from repeating sauce bases in different dishes, as P31 suggested. These findings align with the study by Antera (2021), which emphasizes the developmental nature of professional competences and their relationship with action. Additionally, the importance of leadership and teamwork, as highlighted in the study by López & Rodríguez-López (2020), supports the observed significance of process management and team spirit in the project.

Table 3: Analyzes of Qualitative and Quantitative Data Collected

Outcomes			**SWOT**	**Frequencies of Qualitative Data**				**Descriptive Statistics of Quantitative Data**					
Themes	Categories	Codes		End-Term Evaluations		Semi-Structured Questionnaire		N	Minimum	Maximum	Mean	Std. Deviation	Reliability
Professional Competences	Recipe Development	Production (Action) Planning	T	23	48	8	22	36	4	7	5,9167	0,87423	Cronbach's alpha 0,809
		Professional Terminology	S	13		5							
		Exposure to New Dishes	S	10		4							
		Complexity of Menus	T	2		5							
	Cooking Tech.	Cooking Techniques	S	10	10	5	5		3	7	5,6111	1,17784	
	Presentation Tech.	Constructive Feedback	S	7	9	1	5		2	7	5,4167	1,55609	
		Pressure of External Evaluation	T	2		4							
	Management	Process management	S	24	73	10	41		3	7	5,5556	1,10698	
		Leadership	S	21		7							
		Preparing/ Planning	T	10		6							
		Time Constraints	T	12		7							
		Enforcement lacks	T	6		4							
		Reporting	T			7							
21st Century Skills	Real-life Experience	Real-Life Simulation	S	21	84	8	45		1	7	5	1,53064	
		Professional Skill Development	S	29		12							
		Theoretical vs. Practical Balance	W	1		4							
		Professional Experience	S	16		12							
		Dependence on Other Members	T	15		7							
		Rivalry	T	2		2							
	Engagement	Responsibility Enhancement	S	21	47	5	28		3	7	5,6944	0,85589	
		Clarity	W	2		4							
		Limited Course Duration	W	1		4							
		Attendance Issues	T	23		15							
	Problem Solving	Development of Adaptation Skills	O	10	60	10	46		3	7	5,5556	1,13249	
		Problem-Solving Skills	O	25		23							
		Building Confidence	O	4		4							
		Resource Limitations	T	21		9							
	Communication	Teamwork	S	28	52	11	21		3	7	5,4722	0,9996	
		Accept being criticized	O	4		2							
		Communication Barriers	T	20		8							
General Evaluations	Gamification	Enjoy	O	17		9			3	7	5,5	1,08233	
	Recommendation	Instruction & Learning Potential	O	17		12			2	7	6,0278	1,18288	
Total frequencies of statements				397		217							

Recipe Development was the second most mentioned category in professional competences. The complexity of the five menus in the course design and the required preparation before action (action plan) posed serious challenges. However, these challenges also facilitated the acquisition of professional terminology and exposure to new dishes. P3 evaluated the action planning strategy positively: "*At the first half of the course, systematizing the process by preparing an action plan made the benefits of a practical course gain a different dimension*." P5 acknowledged the difficulty and time-consuming nature of preparing the action plan but recognized its necessity: "*Preparing the action plan as required was really difficult and time-taking, but I am sure that the chef-week would be much more chaotic*." P2 highlighted the theoretical contribution of the action plan: "*I realized that making a theoretical background before practicing has a higher reinforcing effect.*" Observations indicated that students initially struggled to understand the necessity of systematic planning, which disturbed those less eager to engage in the learning process. However, well-prepared plans, as presented in the mid-term exam, accelerated process management for those students. The high mean score for recipe development (5.9167) and low standard deviation (0.87423) indicates a general agreement on its appreciation. These findings are supported by the study on Finnish vocational education, which emphasizes the importance of planning and management skills in vocational training, by Song et.al. (2024). The challenges and benefits of systematic planning observed in the project align with the broader literature on vocational education, highlighting the critical role of these competences in professional development.

Cooking and Presentation Techniques were highlighted as strengths in both qualitative data sources. The moderate mean scores (5.6111 for cooking techniques and 5.4167 for presentation techniques) and moderate standard deviations (1.17784 and 1.55609, respectively) can be explained by the course's advanced level. This course, being in the 6th semester, builds on the technical background gained in earlier semesters. Not too much new things to meet. The focus was on specific production processes rather than basic techniques. Some students appreciated presenting their dishes to external juries, finding it realistic and exciting, as P7 stated: "*The juries out of the class were a real chance for us to have opinions of average people out of the technical evaluation of the faculty. That was exciting.*" Conversely, P34 found this implementation less useful, saying, "*The comments of those who haven't a technical capacity weren't that useful.*" It was observed that students need detailed feedback when presenting a dish. During the presentation stages, the faculty provided technical evaluations alongside customer sampling juries. For students, technical feedback was essential, but non-professional opinions added a colorful dimension. Choosing jury members who can excite students more could enhance production engagement and rivalry among chef teams. These observations align with the findings of the study by Antera (2021), which emphasizes the importance of practical and realistic learning experiences in vocational education. The mixed feedback on external juries highlights the need for balanced and constructive feedback, as discussed in the study by López & Rodríguez-López (2020).

4.2. 21st century skills

21st century skills categories were the most mentioned ones in both ETEs and SSQ.

Statements like *real-life simulation, professional skill development,* and *professional experience* were seen as the strongest sides of the project and had the highest frequencies. P3 stated, "*Each team being a chef and responsible for all the chaotic processes in one week became a good real-professional-life simulation for which we will face one day*." P8 said, "*With this project, we could see the revealing of our strong and weak sides.*" P10 pointed out the learning requirements of being a chef in a gamified simulation. Dependence on other members and rivalry issues were evaluated as threats/challenges. P11 saw this challenge as an opportunity to understand the types of people they will likely work with or compete against in the future. It

was observed that students realized the discrepancy between their peers' behaviors in daily life and working conditions. While some friendships strengthened, others weakened after the kitchen operations. There were few negative evaluations about the theoretical vs. practical balance in the course, but this balance was aligned with the curriculum. Complaints were mostly about the theoretical workload of the course design. Despite its frequency in qualitative data, the real-life experience category had the lowest mean score (5), suggesting a discrepancy between the recognition of its importance and satisfaction with its implementation. The moderate standard deviation (1.53064) indicates some diversity among opinions of the students. This discrepancy could be addressed by clarifying the project's explanations at the beginning of the course, also suggested by Muhsin et al. (2019). These findings align with the study by Ananiadou & Claro (2009), which emphasizes the importance of real-life simulations and professional skill development in preparing students for future challenges.

Problem Solving was evaluated as an opportunity presented by this project. This category was mentioned in relation to the development of adaptation skills, problem-solving skills, and building confidence. Resource limitations (food, equipment) were evaluated as the most challenging aspect of the project. The quality and quantity of resources significantly affected student performance. It was observed that students, facing troubles beyond their control, needed to come together, negotiate, and struggle collectively. In other words, the missing items and problematic situations they encountered (as in real life) helped them improve their problem-solving competences. The mean score for problem-solving abilities (5.5556) was moderate-low, with a standard deviation (1.13249) indicating little variability in responses. These observations are supported by the study by Care et.al (2018), which discusses the importance of problem-solving skills in vocational education and how real-life challenges can enhance these competences.

Communication was another frequently mentioned category, with strengths (teamwork), opportunities (accepting criticism), and threats/challenges (communication barriers). The nature of the project, producing a menu with a group of people, necessitated coordination, collaboration, and synchronization among the group. Regarding teamwork, P2 stated, "*We have been aware of what to focus on and develop in the name of teamwork for the future.*" About being criticized, P10 said, "*In the presentation stage, rival teams being tested and commenting on each other's dishes with respect and listening patiently prevented probable conflicts.*" P31 described the communication barriers and problems during operations as a psychological test. It was observed that students faced difficulties in reaching and interacting with people, especially those not in charge. They witnessed improper and unconvincing excuses from other group members and had to overcome the gaps caused by others. The mean score for this category was moderate (5.4722), with a low standard deviation (0.9996), indicating that most students felt they improved in this area. These findings are consistent with the study Reeve (2016), which highlights the importance of communication and teamwork in vocational education and how these skills are critical for professional success.

Responsibility Enhancement was evaluated as a strength in *engagement*, while attendance issues were the most mentioned threat/challenge. Limited course duration was considered a weak side of the project. P6 stated, "*It would be better seeing the faculty teaching by doing, much more*." As mentioned before, the course of the project isn't a basic degree. So, the project presumed that the students have basic skills about kitchen production. However, the faculty has shown some trimmings like lamb leg boning and fish filleting but didn't show cooking before their action. The course hours are not long enough for two sequenced production processes. Few students wished for more clarity about the project. This side of the project can be developed by adding storytelling elements in the course design. This is the challenge for the faculty to make the students engage in the matter, also mentioned by Mikkonen et al. (2017). The mean score for engagement was relatively high (5.6944), indicating that students generally felt

engaged with the project, and the standard deviation was relatively low (0.85589), indicating consistent responses. It was observed that some students had difficulties keeping up with the flow of the project, subject to its unconventional requirements, like having the responsibility of food production entirely. So, the weak engagement effected their success negatively, also mentioned by Edens (2011). These findings align with the study by Ye, et.al (2024), which discusses the importance of engagement and responsibility in educational projects. The challenges related to attendance and course duration are also highlighted in the literature, emphasizing the need for clear communication and adequate time allocation to ensure student success.

4.3. General evaluations

General evaluations of students about the project were measured using the gamification strategy and recommendation idea.

Gamification was commonly evaluated as enjoyable. P1 expressed their thoughts about the project: "*We ate, got tired, learned, had fun! At the end, it was completed and we said OHHH* 😊" (relief). P25 stated, "*Game of Banquets made the teaching lesson issue more realized*." Observations indicated that even the name "game" helped capture students' attention and maximize their engagement. The gamification category had a moderate mean score (5.5) with a low standard deviation (1.08233), indicating that students generally enjoyed the project. However, there is room for improvement in gamification elements, such as incorporating grade hunts or addressing perceived threats. These findings align with the study by Hamari, Koivisto, & Sarsa (2014) and Deutsch (2014), which discuss the positive effects of gamification on engagement and learning outcomes. The study highlights how gamification can make learning more enjoyable and effective, supporting your observations about the project's impact on student engagement.

Recommendation was mostly about the instructional and learning potential of the project. P16 described the project as the most efficient practical course they had ever had. P17 stated, "*This process has taken our knowledge about the kitchen to a sea beyond.*" P15 said, "*It was completely different from the practical courses we had.*" The mean score for recommendation was the highest (6.0278), with a moderate-low standard deviation (1.18288), indicating that most students would recommend the project for future use. The high recommendation scores reflect the project's effectiveness in providing a valuable and memorable learning experience. Observation notes indicated that some students were less satisfied with the project due to its requirements for active participation, deep research, and detailed preparation. This was reflected in their evaluations and scores, particularly among those less willing to put in the extra effort. Conversely, the majority of students were eager to engage in the game within the scope of commonly agreed rules and roles, and their feedback was highly encouraging, also noted by Long et al. (2017).

This project seems to be compelling and selective, rather than appealing to any level, also mentioned by Eden (2011). The general observations of this study align with Kapp's (2011), which discusses the challenges and benefits of gamified learning. The study highlights the need for clear communication and adequate support to ensure all students can benefit from gamified educational projects. The findings of this project support the previous studies with the dimensions of challenge (Long et al., 2017), adaptation, metacognitive thinking, teamwork and real-world problems (Smith et al., 2022; Azizan and Shamsi, 2022; Puente et al., 2013; Puente et al., 2011), and increased motivation and engagement of learners (Arisoy et al., 2014).

5. CONCLUSION

This study titled "Game of Banquets: Enhancing Practical Culinary Education Through Gamified Learning Strategies" aimed to explore whether practical culinary courses can be innovatively designed using learning strategies and gamification to improve professional and social outcomes. To address this overarching question, the research utilized several step questions: 1-What are the strengths, weaknesses, opportunities, and threats associated with this design from both student and teacher perspectives? 2-Can a well-designed course significantly improve the professional competences and 21st-century skills among students? 3-How do students evaluate the designed project?

In conclusion, the "Game of Banquets" project demonstrated that practical culinary courses can be innovatively designed using learning strategies and gamification to improve professional and social outcomes. The project successfully enhanced students' professional competences, 21st-century skills, and overall satisfaction, requiring active engagement of learners with self-effort. The findings contribute valuable evidence to the literature on learning strategies, inform instructional practices, and highlight the practical applicability of innovative designs in culinary education. Future research should focus on refining gamification elements that the storytelling techniques being added for the clarity, and addressing challenges related to course duration and student engagement to further enhance the effectiveness of such projects.

ETHICAL STATEMENTS

1. The survey was anonymous, protecting the students' identities and encouraging honest responses.
2. Participation in the survey was voluntary. Students were not compelled to participate and their decision to participate or not did not affect their grades or participation in the curriculum.
3. Students were informed about the purpose of the survey and how the data collected would be used. They participated based on their own consent.
4. The semi-structured questionnaire was administered by a third party who was not part of the teaching team, ensuring impartiality in the data collection process.
5. The survey received ethics clearance from the Human Ethics Research Committee of Eskişehir Osmangazi University (E-64075176-050.04-240107141).

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