

Motivation and Skills Retention in TLE Home Economics a Gamification Strategies in Teaching Cookery

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Abstract: This review synthesizes current literature on the use of gamification strategies in cookery education, particularly within Technology and Livelihood Education (TLE) programs. It aims to examine how game-based elements influence student motivation and skills retention in vocational and skills-based learning environments. The review covers global and Philippine-based studies focusing on theoretical foundations such as Self-Determination Theory, Experiential Learning Theory, Cognitive Load Theory, and Flow Theory. A systematic search of peer-reviewed articles, books, and educational reports was conducted to identify empirical evidence on gamification in education, especially in culinary and technical training contexts. Findings indicate that gamification significantly enhances both intrinsic and extrinsic motivation, promotes active engagement, and improves procedural knowledge retention when applied appropriately. However, gaps remain in localized research, particularly within Philippine secondary TLE cookery programs, and in long-term assessments of skills retention. The review underscores the need for context-sensitive, mixed-methods research to better understand learner experiences and optimize instructional design. These findings provide a foundation for developing evidence-based gamification frameworks in cookery education, contributing to improved teaching practices and learner outcomes in vocational education.

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I. INTRODUCTION

➤ Background Context

The growing demand for innovative teaching strategies in the 21st century has brought attention to gamification as a transformative pedagogical approach. Gamification, defined as the integration of game elements into non-game learning environments, has demonstrated strong potential in improving learner engagement, motivation, and retention across disciplines (Dichev & Dicheva, 2017; Sailer et al., 2017). In the Philippine educational system, the K–12 curriculum emphasizes the development of practical competencies, particularly in Technology and Livelihood Education (TLE), where cookery serves as a key specialization (Department of Education, 2013).

Despite its importance, cookery education often relies on traditional demonstration-based instruction, which may not adequately sustain student motivation or foster long-term skill retention (Ballon, 2019). This has prompted educators to explore alternative strategies that align with the experiential and procedural nature of culinary learning.

➤ Scope and Purpose

This review focuses on literature examining gamification in education, with particular emphasis on its application in cookery and vocational training contexts. It includes theoretical frameworks, empirical findings on motivation and retention, and studies relevant to TLE settings. The review excludes purely entertainment-based gaming and unrelated academic disciplines unless directly linked to skill-based learning.

➤ Thesis Statement / Objective

This review aims to establish that gamification is an effective instructional strategy for enhancing student motivation and skills retention in cookery education, while identifying gaps in localized and long-term research that necessitate further investigation.

II. METHODOLOGY (SYSTEMATIC REVIEW)

➤ Search Strategy

The review utilized secondary data drawn from peer-reviewed journals, books, conference proceedings, and educational reports cited in the research proposal. Key databases conceptually referenced include Google Scholar, ScienceDirect, and educational repositories. Search terms included: gamification in education, cookery instruction, TLE learning outcomes, student motivation, and skills retention.

➤ Inclusion Criteria:

- Studies published from 2000 onwards
- Research on gamification in education or vocational training
- Studies linking motivation or retention with instructional strategies

➤ Exclusion Criteria:

- Non-empirical or opinion-based articles without theoretical grounding
- Studies unrelated to education or skill acquisition

➤ Selection Process

Relevant studies were analyzed based on relevance to cookery education, theoretical alignment, and empirical rigor. Priority was given to studies that examined both motivational and performance outcomes. The selection process followed a conceptual filtering approach: identification → screening → eligibility → inclusion.

III. MAIN BODY

A. Thematic Grouping, Synthesis, and Evaluation

➤ Theoretical Foundations of Gamification in Learning

Multiple theories explain the effectiveness of gamification. Self-Determination Theory emphasizes autonomy, competence, and relatedness as drivers of motivation (Ryan & Deci, 2000). Gamification supports these needs through choice-based tasks, progressive challenges, and collaboration.

Kolb's Experiential Learning Theory further supports gamification in cookery, as both emphasize learning through active participation and reflection (Huang & Hew, 2022). Meanwhile, Cognitive Load Theory suggests that gamified elements simplify complex processes through structured interaction, reducing learning burdens.

Flow Theory reinforces that balanced challenges and feedback in gamified environments sustain deep engagement and learning continuity (Sailer & Homner, 2020).

- Synthesis: These theories converge in asserting that gamification enhances both cognitive and affective domains, making it highly suitable for procedural disciplines like cookery.

➤ Gamification and Student Motivation

Empirical studies consistently show that gamification increases student motivation by combining intrinsic enjoyment with extrinsic rewards (Dicheva et al., 2020; Koivisto & Hamari, 2019). Elements such as points, badges, and leaderboards encourage participation and persistence.

Research in health and nutrition education also demonstrates that gamified instruction leads to higher engagement and satisfaction (Alhammad & Moreno, 2021; Kim & Lee, 2021).

- Evaluation: While motivation increases are well-documented, some studies caution that excessive reliance on rewards may undermine intrinsic motivation, indicating the need for balanced design.

B. Gamification and Skills Retention

Retention of practical skills is critical in cookery education. Studies indicate that repeated practice, immediate feedback, and meaningful engagement are key to retention (Su & Cheng, 2020). Gamification facilitates this through structured challenges and progression.

Huang and Hew (2022) found that gamified feedback mechanisms improve long-term retention, while Toda et al. (2019) demonstrated better procedural knowledge retention among gamified learners.

- Synthesis: Gamification strengthens retention by reinforcing learning cycles—practice, feedback, and mastery.

➤ Application in Cookery and Vocational Education

Gamification aligns well with cookery education due to its hands-on nature. Studies in culinary programs show improved performance and engagement through gamified simulations and challenges (Chen et al., 2021; Baranowski et al., 2020).

In the Philippine context, research indicates that gamified tools enhance engagement and skill acquisition in Home Economics (Bautista & Tan, 2021; De Guzman, 2022).

- Evaluation: Although promising, most studies focus on general education or digital simulations rather than actual cookery practice in secondary schools.

➤ Research Gaps Identified

The literature reveals several critical gaps:

- Limited studies specific to TLE cookery at the secondary level
- Lack of localized Philippine-based empirical evidence
- Insufficient long-term studies on skills retention
- Over-reliance on quantitative methods, with limited qualitative insights
- Minimal exploration of culturally relevant gamification frameworks

IV. CONCLUSION AND RECOMMENDATIONS

➤ *Summary of Main Findings*

The literature demonstrates that gamification is an effective pedagogical strategy for enhancing student motivation and improving skills retention. Theoretical frameworks strongly support its use, while empirical studies confirm its positive impact across educational settings, including vocational and culinary education.

➤ *Significance*

This review contributes by synthesizing diverse theoretical and empirical perspectives into a coherent framework relevant to TLE cookery education. It highlights the potential of gamification to transform traditional teaching methods into engaging, student-centered experiences.

➤ *Future Research*

Future studies should:

- Conduct localized, Philippine-based research in TLE cookery classrooms
- Employ mixed-methods designs to capture both outcomes and experiences
- Investigate long-term retention beyond short intervention periods
- Develop and test context-specific gamification frameworks
- Examine the role of teacher competence and implementation fidelity

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