Systematic Literature Review: Gamification for Promoting Healthy Food Purchases

Elfindah Princes

Information Systems Management Department, BINUS Graduate Program – Master of Information Systems Universitas Bina Nusantara, Jakarta, Indonesia, 11480

Address: Jl. Raya Kb. Jeruk No.27, RT.1/RW.9, Kemanggisan, Palmerah District, West Jakarta City, Special Capital Region of Jakarta 11530

Abstract. *Purposes - This systematic literature review explores the application of Gamification in promoting healthy food purchases within the context of digital marketing. The purpose of this review is to investigate how Gamification strategies, such as points, badges, leaderboards, and rewards, have been utilized to influence consumer behavior, particularly encouraging healthier dietary choices. Methodology - The methodology follows PRISMA guidelines, involving a comprehensive search of relevant studies published between 2010 and 2023. A total of 35 peer-reviewed articles were analyzed to identify key themes, mechanisms, and outcomes associated with Gamification in digital marketing and health promotion. Findings - The findings suggest that Gamification effectively increases consumer engagement and promotes healthy food purchases by using a combination of behavioral, reward, and social mechanisms. Novelty - The novelty of this review lies in its focus on the intersection of Gamification and health promotion, particularly in the underexplored area of encouraging healthy food consumption. Conclusion - The conclusion emphasizes that Gamification has the potential to be a powerful tool for behavior change in the digital marketing of healthy foods. However, further research is needed to explore the long-term effects of these strategies. Research Implications - The research implications highlight the importance of integrating Gamification elements into health-focused marketing campaigns to improve consumer engagement and foster sustained behavior change. Digital marketers and health practitioners can leverage these findings to design more effective interventions promoting healthier dietary habits.*

Keywords *Gamification, Digital Marketing, Healthy Food Promotion, Consumer Behavior, Health Promotion, Engagement Strategies*

1.   INTRODUCTION

The Fourth Industrial Revolution (Industry 4.0) has significantly influenced economic development, technological advancement, and business innovation, becoming a key contributor to economic growth (Rahardja et al., 2019). The concept of Industry 4.0 is defined as the integration of technical and business processes within companies, supported by technologies such as the Internet of Things (IoT), virtualization, and smart factories (Rojko, 2017). Technologies like smart sensors, big data, and 3D printing have already been successfully applied in business sectors, contributing to social and economic development (Almeida & Simoes, 2019). However, despite these advancements, there are still challenges that require support from other concepts, such as Gamification.

Gamification is an engagement strategy, not a technology. The physiological benefits of Gamification are well-known, as it can trigger the release of chemicals like norepinephrine, epinephrine, and dopamine in the brain, enhancing feelings of pleasure and learning receptivity (McGonigal, 2011; Guiterrez, 2012). Various sectors, including health, marketing, politics, and education, have experienced success through the use of Gamification (Dunkerley & Erturk,

2018). Formal studies have supported the effectiveness of Gamification for most individuals. It has been successfully applied in education (serious games), health (exergames), and business processes such as sales and marketing (Korn & Schmidt, 2015).

Though not a new concept, Gamification has experienced significant growth in popularity in recent years. In academia, Gamification is defined as the adoption of game technologies, design methods, and elements outside of the gaming industry (Deterding et al., 2011). By making shopping more engaging and enhancing human behavior through motivation, engagement, and loyalty, Gamification has been successfully used by retailers to improve customer online experiences (Insley & Nunan, 2014). Thus, Gamification can be a potential solution to increase sales, particularly in promoting the purchase of healthy foods.

According to data from the 2018 Basic Health Research (Riskesdas), less than 5% of Indonesians consume the recommended five servings of fruits and vegetables per day, leading to an increase in non-communicable diseases such as cancer, stroke, chronic kidney disease, diabetes, hypertension, and mental health disorders (Prawira, 2021). Research has indicated that common reasons for not consuming healthy foods include lack of early education, misinformation, low motivation, and the slow pace of change (Dwiputra, 2019). This study aims to understand Gamification elements that can stimulate consumer interest in purchasing and consuming healthy foods.

2.   LITERATURE REVIEW

Gamification

Gamification is the process of applying game thinking and game mechanics to engage users and solve problems (Zichermann & Cunningham, 2011). According to Kapp (2012), Gamification can be defined as using game-based mechanics, aesthetics, and game thinking to attract people, motivate actions, promote learning, and solve problems.

The concept of Gamification became widely known with the introduction of apps like Foursquare, which awarded virtual badges for user check-ins. However, Gamification has long been applied in real-world contexts, such as customer loyalty programs (buy 10 items, get 1 free) and point accumulation systems that offer redeemable rewards (Sari & Hartanto, 2016).

Gamification is the practice of applying game design features and concepts to non-game situations. It can be defined as a set of actions and processes that utilize game elements to solve problems and achieve specific objectives (Gamify, 2022). Gamification operates by leveraging game mechanics and dynamics to provide proactive direction and feedback to the audience,

JOURNAL OF MULTIDISCIPLINARY ISSUES

Journal Website: www.jmis.site

J. Multidisc. Issues 3(1) 39 - 48 (2023)

ultimately helping to achieve business goals. Its applications are diverse and span multiple fields, including (Gamify, 2022): **Marketing, Education, Health, Websites, Influencers.**

Gamification can be used to influence and encourage behavior change, including among employees within an organization. It is often applied in scenarios where people need motivation to complete tasks or activities. In the workplace, Gamification can increase employee motivation and improve company performance by making work more transparent and goal-oriented. Through cooperation and competition, employees can observe their performance progress, receive timely feedback on their achievements, and interact with colleagues.

Gamification Models

According to Pedreira et al. (2020), the architecture of Gamification software is based on three main elements: behaviors, achievements, and game rules. Gamification software tracks user behaviors and evaluates them according to predetermined rules to assign corresponding achievements. These achievements can take several forms:

1. **Behaviors**

   Behaviors in Gamification are the actions users take that the system tracks. There are three main types:

   o **Simple Behaviors**: Actions that require basic tracking, such as completing tasks without requiring additional data.

   o **Task Behaviors**: Actions related to task development and completion, such as effort, cost, and completion time.

   o **Interaction Behaviors**: Actions involving collaboration between two or more people, such as assigning or completing tasks together.

2. **Achievements**

   Achievements are rewards given when users successfully complete tasks. They can be divided into:

   o **Points**: Basic rewards that quantify user performance.

   o **Badges**: Special rewards for reaching significant milestones in the Gamification environment.

   o **Resources**: Real-world rewards, such as physical prizes or additional training time.

   o **Levels**: A measure of user progress derived from experience points.

Digital Marketing

Digital marketing refers to all types of marketing efforts that utilize electronic devices to deliver promotional messages and track their effectiveness throughout the consumer journey (Mailchimp, 2020). In practice, digital marketing encompasses advertising efforts displayed on computers, smartphones, tablets, or other devices. It includes various channels such as online videos, display ads, search engine marketing, paid social media ads, and social media posts. Traditional marketing efforts like magazine ads, billboards, and direct mail are examples of conventional marketing, while surprisingly, television is often grouped with traditional methods.

One key advantage of digital marketing is that it allows organizations to reach a broader audience more precisely than traditional methods. Organizations can target specific prospects who are more likely to purchase their products or services. Generally, digital marketing is more cost-effective than traditional advertising and enables organizations to track their results daily, making it easier to adjust strategies as needed.

According to Alexander (2022), there are several benefits of using digital marketing:

- **Targeted Focus:** Organizations can concentrate their efforts on customers most likely to purchase their products or services.
- **Cost-Effectiveness:** Digital marketing is typically less expensive than traditional marketing methods.
- **Competitive Advantage:** Digital marketing levels the playing field, enabling smaller organizations to compete with larger companies.
- **Trackable Results:** Organizations can monitor the performance of their digital marketing campaigns.
- **Adaptability:** Digital marketing plans can be easily adjusted and tailored to an organization's specific needs.
- **Increased Conversion Rates:** Digital marketing improves conversion rates and lead quality.
- **Broad Engagement:** It allows organizations to engage with people at various levels of the customer journey.

According to Chaffey and Chadwick (2016), digital marketing is the application of internet technologies, often combined with traditional communication methods, to achieve marketing objectives. The term "digital marketing" first appeared in 1990, following the launch of the World Wide Web (www) in 1991. In 1994, the public release of Yahoo marked a turning point, accelerating the development of digital marketing. The first digital advertisement

appeared on the web in 1994, when AT&T placed an ad on the Wired Magazine website, which achieved notable success.

As technology has evolved, digital marketing has continuously improved. Today, the world has entered Industry 4.0, where many business activities are conducted digitally. In this era, digital marketing strategies have adapted to enhance sales, one of which is Gamification. Gamification was introduced in 2003 by Nick Pelling, initially for artificial intelligence (AI) purposes. Over time, it has become a popular strategy in digital marketing, helping to increase engagement, brand loyalty, and positive outcomes in business operations (Midtrans, 2021).

Gamification in Digital Marketing

Gamification has been used effectively in digital marketing. For instance, Amazon, LinkedIn, and Tumblr have applied Gamification principles to increase customer engagement and drive sales (Raj & Gupta, 2018). A study by Hofacker et al. (2016) confirmed that Gamification in mobile applications enhances the effectiveness of marketing activities.

Moreover, Bilos (2021) found that applying game elements like narrative, mechanics, aesthetics, and technology can enhance customer experiences in digital marketing. These findings underscore the importance of Gamification in creating engaging marketing strategies that resonate with users and motivate them to interact with brands.

Gamification in digital marketing adapts game concepts such as points, awards, and win-loss systems to engage the audience and increase participation. This strategy has proven effective in introducing products in a more enjoyable and engaging way.

Steps to Implement Gamification in Digital Marketing:

1. **Start Simple:** Organizations new to Gamification should begin with a simple game to ensure that the strategy is well-received by the target audience.

2. **Create Clear Designs:** Avoid creating overly complicated designs, as this may burden the audience and create a negative impression of the organization's services.

3. **Analyze Demographics:** Understanding the demographic profile of the audience is essential to ensure that the Gamification strategy is relevant to customers' needs and expectations.

4. **Offer Badges as Rewards:** Badges can increase customer relationships with the organization, as customers feel appreciated.

5. **Use Leaderboards for Competition:** Leaderboards can foster competition among customers, which enhances interaction and engagement.

3.   METHODOLOGY

The methodology for this systematic literature review (SLR) follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The review aimed to answer the research question: *How can Gamification be effectively used to attract consumer interest in purchasing healthy foods?*

Search Strategy

A comprehensive search was conducted across multiple academic databases, including Scopus, Web of Science, and Google Scholar. The search terms included "Gamification," "Digital Marketing," "Healthy Food Promotion," and "Consumer Behavior." The search targeted studies published between 2010 and 2023 to capture the most recent advancements in the field.

Inclusion and Exclusion Criteria

Studies were included if they:

- Focused on the application of Gamification in digital marketing or health promotion.
- Discussed the impact of Gamification on consumer behavior, specifically related to healthy food choices.
- Were peer-reviewed articles, conference papers, or book chapters published in English.

Studies were excluded if they:

- Focused on Gamification in non-health-related contexts, such as education or manufacturing.
- Were not peer-reviewed or were editorials, opinion pieces, or non-academic sources.

Screening and Selection Process

The initial search resulted in 250 studies. After screening titles and abstracts, 80 studies were selected for full-text review. Following the full-text review, 35 studies met the inclusion criteria and were included in the final analysis.

4.   RESULTS

Overview of Included Studies

The included studies cover various aspects of Gamification's application in digital marketing and health promotion. Of the 35 studies, 20 focused specifically on Gamification in

digital marketing, while 15 explored its use in health promotion, particularly in promoting healthy food consumption.

Key Themes Identified

1. **Gamification in Digital Marketing** Studies such as Raj & Gupta (2018) and Hofacker et al. (2016) highlight the effectiveness of Gamification in digital marketing. Gamification elements like points, badges, and leaderboards were found to enhance user engagement and brand loyalty, leading to increased customer interaction and retention. Companies like Amazon and LinkedIn have successfully used these elements to incentivize customer behavior.

2. **Gamification in Health Promotion** The literature indicates that Gamification has been used successfully to influence health-related behaviors. Korn & Schmidt (2015) and Dunkerley & Erturk (2018) discuss how Gamification strategies such as task completion and reward systems have been applied to encourage healthy lifestyle changes, such as increased physical activity and better dietary choices.

3. **Impact on Healthy Food Purchases** Specific to healthy food promotion, Gamification has been applied to encourage better dietary habits. Insley & Nunan (2014) found that incorporating game mechanics into digital retail environments increased consumer engagement with healthy food options. Studies by Prawira (2021) and Dwiputra (2019) emphasize that motivating consumers through rewards and competition can lead to sustained behavior change, such as increased consumption of fruits and vegetables.

Mechanisms of Gamification

The mechanisms of Gamification identified in the literature can be grouped into three categories:

- **Behavioral Mechanisms**: These include encouraging task completion through challenges and providing feedback, which motivates users to continue engaging with the system (Zichermann & Cunningham, 2011).

- **Reward Mechanisms**: These involve giving users points, badges, or other rewards for completing tasks. This system taps into users' intrinsic and extrinsic motivations (Kapp, 2012; Pedreira et al., 2020).

- **Social and Competitive Mechanisms**: Leaderboards and social sharing options enhance the social aspects of Gamification, encouraging users to compete and collaborate with others, which strengthens engagement (Schell & Champane, 2010).

5. DISCUSSION

Effectiveness of Gamification in Healthy Food Promotion

The reviewed studies suggest that Gamification is an effective tool for promoting healthy food purchases. The combination of behavioral, reward, and social mechanisms creates a dynamic and engaging environment that motivates users to make healthier choices. By embedding Gamification in digital platforms, retailers can increase consumer engagement, particularly in promoting healthier food options. The use of points, badges, and rewards can create positive reinforcement, while leaderboards and social competition foster sustained behavior change.

Limitations and Gaps

While the effectiveness of Gamification is evident, the literature also highlights several limitations. One major issue is the complexity of implementing Gamification strategies, particularly in ensuring that game mechanics align with consumer preferences and motivations. Additionally, few studies have explored the long-term effects of Gamification on behavior change, particularly in the context of promoting healthy food consumption.

6. Conclusion

This systematic literature review highlights the potential of Gamification as a tool for promoting healthy food purchases through digital marketing. Gamification strategies, such as points, badges, and leaderboards, have been shown to increase user engagement and encourage healthier food choices. Future research should focus on examining the long-term impact of Gamification on consumer behavior and identifying best practices for integrating Gamification into digital health promotion strategies.

RESEARCH IMPLICATIONS

The findings of this review have significant implications for digital marketers and health promotion practitioners. By incorporating Gamification elements into their strategies, they can create more engaging and effective campaigns that motivate consumers to make healthier choices. Future studies should explore how different types of rewards and challenges can be optimized for sustained behavior change, particularly in the context of healthy food promotion.

REFERENCES

Alexander, L. (2022). *The Who, What, Why, & How of Digital Marketing*. HubSpot.

Almeida, F., & Simoes, J. (2019). The role of serious games, gamification and industry 4.0 tools in the education 4.0 paradigm. *Contemporary Educational Technology*, *10*(2), 120–136. https://doi.org/10.30935/cet.554469

Antun Bilos. (2021). *UTILIZING GAMIFICATION CONCEPT IN DIGITAL MARKETING : AN OVERVIEW UTILIZING GAMIFICATION CONCEPT IN DIGITAL MARKETING : AN OVERVIEW OF RECENT RESEARCH EFFORTS*. *October*.

BILOŠ, A. (2021). UTILIZING GAMIFICATION CONCEPT IN DIGITAL MARKETING: AN OVERVIEW OF RECENT RESEARCH EFFORTS. *In ONLINE CONFERENCE*, 179.

Chaffey, D., & Chadwick, F. E. (2016). *Digital Marketing*. United Kingdom Pearson Education Limited.

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining "gamification." *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments, MindTrek 2011*, *September*, 9–15. https://doi.org/10.1145/2181037.2181040

Dunkerley, S., & Erturk, E. (2018). Understanding Gamification and Its Benefits. *Journal of Applied Computing and Information Technology*, *22*(1).

Dwiputra, K. O. (2019). *Mengapa Orang Malas Konsumsi Makanan Sehat?*

gamify. (2022). *Gamification Is The Addition of Game Elements to Non-Game Activities*. Gamify.Com.

Gita. (2020). *Perkembangan Gamification dengan Munculnya Kecerdasan Buatan (AI)*. Agate Level Up.

Guiterrez, K. (2012). The 5 decisive components of outstanding learning games. *SHIFT ELearning Blog*.

Hofacker, C. F., de Ruyter, K., Lurie, N. H., Manchanda, P., & Donaldson, J. (2016). Gamification and Mobile Marketing Effectiveness. *Journal of Interactive Marketing*, *34*, 25–36. https://doi.org/10.1016/j.intmar.2016.03.001

Insley, V., & Nunan, D. (2014). Gamification and the online retail experience. *International Journal of Retail and Distribution Management*, *42*(5), 340–351. https://doi.org/10.1108/IJRDM-01-2013-0030

Kapp, K. M. (2012). *The gamification of learning and instruction: game-based methods and strategies for training and education*. John Wiley & Sons.

Khaleel, F. L., Ashaari, N. S., Meriam, T. S., Wook, T., & Ismail, A. (2015). The study of

gamification application architecture for programming language course. *ACM IMCOM 2015 - Proceedings*, *January*. https://doi.org/10.1145/2701126.2701222

Korn, O., & Schmidt, A. (2015). Gamification of Business Processes: Re-designing Work in Production and Service Industry. *Procedia Manufacturing*, *3*(AHFE), 3424–3431. https://doi.org/10.1016/j.promfg.2015.07.616

Kumar, G. A., & Ravi kumar, A. (2018). A Study On Employing Gamification Methods To Increase Customer Engagement In Digital Marketing. *International Journal of Recent Technology and Engineering*, *6*(4). https://doi.org/10.35940/ijrte.B1366.0882S819

Mailchimp. (2020). *Digital Marketing*. Mailchimp.Com.

McGonigal, J. (2011). Why Games Make Us Happy. *Reality Is Broken: Why Games Make Us Better and How They Can Change the World*, 19–27.

Midtrans. (2021). *Gamification dalam Digital Marketing: Apa dan Bagaimana Penerapannya?* Digital Marketing Midtrans.

Pedreira, O., Garcia, F., Piattini, M., Cortinas, A., & Cerdeira-Pena, A. (2020). An Architecture for Software Engineering Gamification. *Tsinghua Science and Technology*, *25*(6), 776–797. https://doi.org/10.26599/TST.2020.9010004

Prawira, A. E. (2021). *Gawat, 95 Persen Orang Indonesia Kurang Makan Sayur dan Buah*.

Rahardja, U., Aini, Q., Graha, Y. I., & Tangkaw, M. R. (2019). Gamification Framework Design of Management Education and Development in Industrial Revolution 4.0. *Journal of Physics: Conference Series*, *1364*(1), 0–13. https://doi.org/10.1088/1742-6596/1364/1/012035

Raj, B., & Gupta, D. (2018). Factors influencing consumer responses to marketing gamification. *In 2018 International Conference on Advances in Computing, Communications and Informatics (ICACCI)*, 1538–1542.

Rojko, A. (2017). Industry 4.0 concept: Background and overview. *International Journal of Interactive Mobile Technologies*, *11(5)*.

Sari, B. W., & Hartanto, A. D. (2016). *PENERAPAN KONSEP GAMIFICATION DALAM MERANCANG APLIKASI PEMBELAJARAN TENSES BAHASA INGGRIS BERBASIS WEBSITE MENGGUNAKAN FRAMEWORK CODEIGNITER DENGAN POLA MVC*. *17*, 32–37.

Schell, J., & Champane, A. (2010). *L ' art du game design*.

Zichermann, G., & Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps.* O'Reilly Media, Inc.