

The Role of Gamification in E-Commerce: A Study on Customer Behaviour, Engagement and Experience

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Received: 28th Feb, 2026; Revised: 6th March 2026; Accepted: 7th April, 2026; Available Online: 20th April, 2026

ABSTRACT

The main goal of e-commerce companies is to give customers unforgettable online purchasing experiences. When launching an e-commerce firm, the virtual interaction with the platform one chooses is crucial. Digital companies can use engaging game-like technologies to tackle the numerous challenges that e-commerce confronts. The current study aims to analyse the impact of gamification on customer behaviour in the e-commerce industry. It further assesses the elements of gamification that impact customer engagement and determines how customer experience and satisfaction vary regarding the employment of gamification in the e-commerce industry. The study further analyses the impact of gamification on customer loyalty and purchase decisions in the e-commerce industry. Finally, it identifies the benefits and challenges of integrating gamification in the e-commerce industry. In order to accomplish the research goals, a PRISMA model was used wherein after employing the inclusion-exclusion criteria, 55 articles were finalised and critically analysed. When examining how gamification affects consumer behaviour in the e-commerce sector, it was discovered that gamification has a significant influence on consumer behaviour since it facilitates decision-making and increases engagement. Additionally, points, badges, and leaderboards are gamification components that influence consumer involvement in the e-commerce sector. The addition of game aspects and personalised interactions resulted in significant differences in customer happiness and experience. By creating compelling purchasing paths and offering tailored incentives, gamification improved consumer loyalty and buying decisions. Additionally, gamification is linked to a number of advantages, including enhanced engagement, positive user satisfaction, and enhanced brand loyalty. However, there are drawbacks to this concept, such as synchronising user choices, preventing user weariness from over-gamification, and using resources and design aspects to apply gamification to improve customer experiences and organisational objectives.

Keywords: *Gamification, E-commerce, Customer Behaviour, Customer Engagement, Customer Experience*

How to cite this article: Sharma A. The Role of Gamification in E-Commerce: A Study on Customer Behaviour, Engagement and Experience. *Int J Drug Deliv Technol.* 2026;16(6): 293-313. DOI: 10.25258/ijddt.16.6.37

Source of support: Nil.

Conflict of interest: None

1. INTRODUCTION

1.1 Background for Review

Since innovation is seen as essential to a company's existence, management experts believe that innovation competence is the most significant factor influencing corporate success. There are many interpretations of innovation, and each one focuses on a certain facet of the concept. Innovation is a procedure and a result, with the former coming before the latter and needing to be assessed independently to prevent circular reasoning (Abril & Gimenez-Fernandez, 2024). Arnemann et al. (2024) suggested that innovative issues can be addressed in a variety of ways, and gamification is one such strategy. The approach of turning any operation, structure, assistance, goods, or organisational structure into a unique procedure that promotes beneficial experiences comparable to those found in games in order to support behavioural or cognitive alterations is known as gamification.

Due to the increasing gamification of operations, procedures, and offerings, as well as the pervasiveness of games in everyday life, the world around us and our

lifestyles are becoming more and more like games (Koivisto & Hamari, 2019). Gamification is the process of trying to influence user behaviour by creating technological platforms that offer interactions and incentives that are comparable to those found in games. Gamification's prominence has exploded in the past few years, as evidenced by the rise in gamified apps and the quickly expanding body of literature on the topic (Kawaf & Giroto, 2024). Legaki et al. (2021) suggested that gamification may help individuals understand objectives and their significance, guide them along directed avenues, provide them with instant feedback, reward achievements, and break down difficult content into simple activities. While the platform can adjust the difficulty to the customer's capabilities, gamification techniques can let individuals pick between many advancement tracks and achieve personal objectives. Aspects of social gamification could facilitate social comparison and link people to help one another and strive for a similar objective (Legaki et al., 2021).

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The way businesses interact with their clientele has changed dramatically as a result of the adoption of digital marketing. Interaction, a variety of content, and digital mediums allow for smooth and customised interaction with customers. Social media is typically used by customers who employ digital resources during the purchasing process (Rizvanović et al., 2023). According to Singh (2024), a company's success with social media marketing is greatly influenced by customer service, platform trust, safe data collaboration, and perceived usefulness. Further, Maucuer et al. (2022) assert that value in the digital marketplace must be viewed as a constant and shifting exchange between the focal firm and its faces, which frequently include individual users and business clients. The use of AI algorithms, gamification, social media interfaces (for B2C businesses), electronic data exchange, and other innovations have caused data-based company structures to evolve. Technology makes it possible for value to be generated via participant interactions that are captured as data and then monetised through statistical analysis. As a result, marketers must comprehend how consumer data contributes to creating a competitive edge. As the e-commerce industry has gained immense importance in the previous few years (Rosillo-Díaz et al., 2024), this study predominantly focuses on assessing the role of gamification in the e-commerce industry, emphasising customer behaviour, engagement and experience related to it.

1.2 Review Objectives

RO1: To analyse the impact of gamification on customer behaviour in the e-commerce industry.

RO2: To assess the elements of gamification that impact customer engagement in the e-commerce industry.

RO3: To determine how customer experience and satisfaction vary regarding the employment of gamification in the e-commerce industry.

RO4: To analyse the impact of gamification on customer loyalty and purchase decisions in the e-commerce industry.

RO5: To identify the benefits and challenges of integrating gamification in the e-commerce industry.

1.3 Research Questions

RQ1: What is the impact of gamification on customer behaviour in the e-commerce industry?

RQ2: What are the elements of gamification that impact customer engagement in the e-commerce industry?

RQ3: How do customer experience and satisfaction vary regarding the employment of gamification in the e-commerce industry?

RQ4: What is the impact of gamification on customer loyalty and purchase decisions in the e-commerce industry?

RQ5: What are the benefits and challenges of integrating gamification in the e-commerce industry?

2. INCLUSION AND EXCLUSION CRITERIA

The inclusion and exclusion criteria followed for the review studies as contributions to the present study will be discussed in this section:

- All the studies which have been published between 2018-2024 will be included in the study.
- All studies which are published in English will be included in the study.
- Studies which are open-access (full text is available) will be included in the study.

Criteria for Exclusion

- All books, book chapters, and only abstracts will be excluded from the study.

3. RESEARCH METHODOLOGY

3.1 Search Strategy

A PRISMA model is used in this study to identify the most important references within the framework of the current investigation. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) paradigm or collection of standards was created by Sarkis-Onofre et al. in 2021. These methods could be useful for methodical reviews, critical evaluations of papers, and in-depth analyses of scientific research. The PRISMA methods and processes employ a variety of approaches to conduct in-depth research and literature evaluations for write-up enquiries. "Gamification and E-commerce and Customer Behaviour", "Gamification and E-commerce and Customer Engagement" and "Gamification and E-commerce and Customer Experience" were the search strings used to find the references.

3.2 Methods for Study Selection and Appraisal

Four steps were used to identify and elaborate the most appropriate references for the study purposes

Step 1: Search strings have been designed by taking into consideration keywords adopted for research for the initial identification of references. The search strings used and total references identified initially have been highlighted in the table below:

Strings	Science Direct
Gamification and E-commerce and Customer Behaviour	480
Gamification and E-commerce and Customer Engagement	383
Gamification and E-commerce and Customer Experience	489

Thus, a total of 1352 references have been selected from the utilisation of search strings in the ScienceDirect database.

Step 2: In the subsequent stage, Duplicates were removed from the initial database in order to ensure each unique article was considered for the subsequent stage, which led to the exclusion of around 334 articles, leading to a total of 1218 studies being considered for the next stage.

Step 3: Of the total 1218 unique articles selected during the study, the year criteria (inclusion of articles from 2018-2024) was applied which led to the further exclusion of 68 articles, leading to a total of 1150 unique journal articles which are unique and published during 2018-2024.

Step 4: Further, all closed-access studies, book chapters and abstracts are excluded which leads to a further selection of 404 articles. All book chapters as well as conference papers have been excluded from the study, along with exclusion criteria. Each of these articles was analysed in accordance with the objectives of the study, leading to a selection of 55 final references for the study.

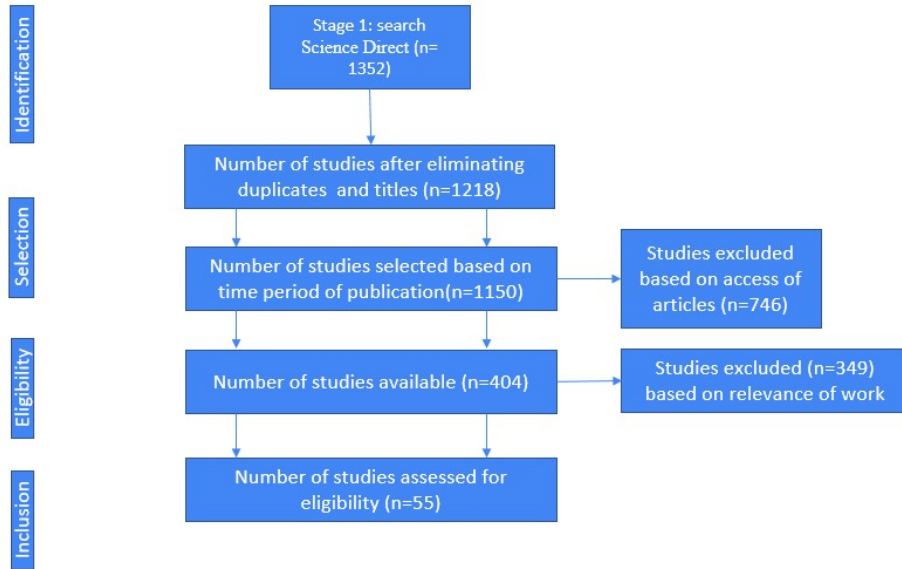


Figure 1: PRISMA Model

4. DATA EXTRACTION AND SYNTHESIS

The data extracted from the relevant journal articles has been discussed here:

S.No	Author	Year	Title	Research Methodology	Major Observation/ Results
1.	Abril, C., & Gimenez-Fernandez, E. M.	2024	Using gamification to overcome innovation process challenges: A literature review and future agenda.	Systematic Literature Review	For businesses to remain relevant in ever-evolving contexts, innovation is essential. Innovative procedures aid in the systematisation and organisation of innovation within businesses, making it easier to adopt new input streams and technology. Nevertheless, businesses face numerous obstacles at various stages of the innovation procedure, which might hinder their ability to effectively execute innovations.

2.	Aiolfi, S., & Luceri, B.	2024	See you on the Metaverse: A bibliometric expedition through the Metaverse landscape.	Bibliometric Evaluation	Businesses looking to invest in the Metaverse need to understand the relationships, patterns, and dynamics that characterise online gaming societies. It is crucial to evaluate their effects on companies and how they might interact with clients if gaming is the main medium in these realms.
3.	Alsoud, M., Trawnih, A., Yaseen, H., Majali, T. E., Alsoud, A. R., & Jaber, O. A.	2024	How could entertainment content marketing affect intention to use the metaverse? Empirical findings.	Online Questionnaire Survey	The intention to shop in the metaverse is boosted by "continuity", a "sense of presence", "interoperability", "economic flow", and "concurrence".
4.	Aparicio, M., Costa, C. J., & Moises, R.	2021	Gamification and reputation: key determinants of e-commerce usage and repurchase intention.	SEM/PLS methodology	Trust has a beneficial effect on e-commerce intent, buy frequency range, and intentions to repurchase. E-commerce systems' usability and ease of use influence users' intentions to utilise them.
5.	Arnemann, L., Galera, S. L., Winter, S., & Schleich, B. (2024).	2024	Gamification of Resource Consumption Monitoring of Products and Machines: A Cross-Platform and User-Friendly Approach.	Case Study Approach	Innovative issues can be addressed in a variety of ways, and gamification is one such strategy.
6.	Asanprakit, S., & Kraiwanit, T.	2023	Causal factors influencing the use of social commerce platforms	SEM Model	The results show that s-commerce platform utilisation and motivation among users are directly impacted by "social", "technological", "platform", and "economic" aspects.
7.	Aulia, V. R., Nadlifatin, R., & Subriadi, A. P.	2024	The effect of gamification elements on user buying intention in an on-demand service platform.	Surveys and SEM	According to this research, user intent to purchase is significantly and considerably impacted by points and awards.
8.	Bai, Y., & Li, H.	2022	Mapping the evolution of e-commerce research through co-word analysis: 2001–2020.	Systematic Literature Review	Studies discovered that over the course of the 20-year study, many research themes, like "eGovernment" and the "recommended system", have remained

					significant and have been regularly examined.
9.	Bitrián, P., Buil, I., & Catalán, S.	2021	Enhancing user engagement: The role of gamification in mobile apps.	Partial least squares regression	The customer's requirements about relatedness, autonomy and competency via gamification encourage engagement, impacting the possibility of word-of-mouth recommendations and the enhanced usage of the platform.
10.	Blanco, R., Trinidad, M., Suarez-Cabal, M. J., Calderón, A., Ruiz, M., & Tuya, J.	2023	Can gamification help in software testing education? Findings from an empirical study.	Controlled Experiment Technique	Learners who took part in the gamification process performed more effectively and were more interested.
11.	Bräuer, P., & Mazarakis, A.	2022	“Alexa, can we design gamification without a screen?”- Implementing cooperative and competitive audio-gamification for intelligent virtual assistants.	The outcomes of a lab experiment with 81 subjects	The audio-gamification had a favourable impact on their mindset as well as how long it took them to complete the assignments. The results showed that audio gamification holds great promise for the voice assistance industry.
12.	Brito Silva, M. J., & de Oliveira Campos, P.	2024	Past, present, and future of avatar marketing: A systematic literature review and future research agenda.	A Systematic Literature Review	The study findings depicted that avatars improve communication with marketers and fulfilment in an interactive actuality, guaranteeing customer engagement.
13.	Buhalis, D., Leung, D., & Lin, M.	2023	Metaverse as a disruptive technology revolutionising tourism management and marketing.	Literature Review	People who are tech-ready and tech-competent are likely to embrace the world of the Metaverse to the extent that it is readily available, reasonably priced, usable, and provides an enjoyable experience and worth.
14.	Chen, H., Li, H., & Pirkkalainen, H. (2024).	2024	How extended reality influences e-commerce consumers: A literature review.	Literature Review	Findings suggested that XR can give individual customers realistic, engaging 3D shopping events, including the ability to evaluate clothes and other apparel and enhance the service or goods details to help them make online purchases.
15.	Dzandu, M. D., Hanu, C., & Amegbe, H.	2022	Gamification of mobile money	Structural equation modelling (SEM)	The consumer value elements, customer

			payment for generating customer value in emerging economies: The social impact theory perspective.		involvement, contentment, and loyalty, were strongly predicted by compliance; loyalty and contentment were significantly anticipated by recognition; and none of the consumer value results were substantially predicted by internalisation.
16.	Evans, R., Christiansen, P., Masterson, T., Barlow, G., & Boyland, E.	2024	Food and non-alcoholic beverage marketing via Fortnite streamers on Twitch: A content analysis.	Content Analysis	Energy beverages were among the most prominent food groups, and the majority of the cues were High in fats, salt and/or sugar foods. The majority of cues were branded and displayed as looping images or placement of goods. Healthy foods had a higher probability of being consumed by followers than High in fats, salt and/or sugar foods.
17.	Fernández-Ruano, M. L., Frías-Jamilena, D. M., Polo-Peña, A. I., & Peco-Torres, F.	2022	The use of gamification in environmental interpretation and its effect on customer-based destination brand equity: The moderating role of psychological distance.	A quasi-experiment	A gamified environmental interpreting encounter has a stronger impact on customer-based destination brand equity than a non-gamified one, and it is more pronounced for individuals who believe that the location is psychologically close.
18.	Flavián, C., Ibáñez-Sánchez, S., Orús, C., & Barta, S.	2024	The dark side of the metaverse: The role of gamification in event virtualization.	Mixed-methods approach	Users' views of the genuineness of the cultural occurrence and their capacity to visualise the actual experience improved as their concentration levels rose, leading to positive behavioural intentions.
19.	García-Jurado, A., Torres-Jiménez, M., Leal-Rodríguez, A. L., & Castro-González, P.	2021	Does gamification engage users in online shopping?.	Customer Feedback survey	According to the current research, gamification directly affects Internet commerce customer engagement.
20.	Gunawan, F., Santoso, A. S., Yustina, A. I., & Rahmiati, F.	2022	Examining the effect of radical innovation and incremental innovation on leading e-commerce startups	Structural Equation Modeling	The data also demonstrated that perceived pleasure and fulfilled involvement have a favourable effect

			by using the expectation confirmation model.		on continuation desire.
21.	Högberg, J., Ramberg, M. O., Gustafsson, A., & Wästlund, E.	2019	Creating brand engagement through in-store gamified customer experiences.	Field Experiment	Gamification has an impact on an activity's hedonic value and that its beneficial effects may assist in clarifying this impact. It was discovered that this hedonic value was a more accurate indicator of the desire to continue engaging in comparison to the fulfilment of a reward.
22.	Huang, M., Saleh, M. S. M., & Zolkepli, I. A.	2024	The moderating effect of environmental gamification on the relationship between social media marketing and consumer-brand engagement: A case study of Ant Forest Gen Z users.	Case Study Approach	Ant Forest gamification significantly modifies the link between modernity and consumer-brand interaction negatively while significantly modulating the association between personalisation and consumer-brand interaction.
23.	Högberg, J., Shams, P., & Wästlund, E.	2019	Gamified in-store mobile marketing: The mixed effect of gamified point-of-purchase advertising.	A Field Experiment	Gamification was not always effective at making people more likely to take advantage of offerings. Participation in a gamified purchasing task was required; otherwise, gamification may even reduce the propensity to take action on offerings.
24.	Humlung, O., & Haddara, M.	2019	The hero's journey to innovation: gamification in enterprise systems.	Literature Review	Gamification strategies may help overcome the gap between the technological and social facets of an organisation's culture.
25.	Jang, S., & Kim, J.	2022	Enhancing exercise visitors' behavioural engagement through gamified experiences: A spatial approach	Spatial Analytic Method and Questionnaire approach	Gamified experiences affected local and tourist visitors' exercise lengths and timeframes differently. Different gamified encounter types and independent and clustered sites have different effects on the user's gamification-engagement correlation.
26.	Kawaf, F., & Giroto, M.	2024	Mapping the terrain of social and livestream commerce research	A bibliometric review	Gamification's prominence has exploded in the past few years, as

			through the affordance lens: A bibliometric review and research agenda.		evidenced by the rise in gamified apps and the quickly expanding body of literature on the topic.
27.	Khan, A., Rezaei, S., & Valaei, N.	2022	Social commerce advertising avoidance and shopping cart abandonment: A fs/QCA analysis of German consumers.	Qualitative Comparative Analysis	Gamification of advertisements with appropriate material is one strategy to enhance the experiences of social commerce customers. This could benefit hedonistically and emotionally encouraged social commerce individuals who find advertisements on social media platforms interesting, which would lower abandonment rates for shopping carts.
28.	Koh, W. C., & Seah, Y. Z.	2023	Unintended consumption: The effects of four e-commerce dark patterns.	Literature Review	Compared to other dark trends, the limited-time messaging dark pattern was much more successful at promoting consumption. Dark patterns are more likely to affect elderly people. The efficacy of an activity and video-based dark patterns awareness approach was not clearly demonstrated.
29.	Koivisto, J., & Hamari, J.	2019	The rise of motivational information systems: A review of gamification research.	Mixed Results	The increasing gamification of operations, procedures, and offerings, as well as the pervasiveness of games in everyday life, the world around us and our lifestyles are becoming more and more like games
30.	Krath, J., Schürmann, L., & Von Korflesch, H. F.	2021	Revealing the theoretical basis of gamification: A systematic review and analysis of theory in research on gamification, serious games and game-based learning.	A Systematic Review	Aspects of social gamification could facilitate social comparison and link people to help one another and strive for a similar objective
31.	Legaki, N. Z., Karpouzis, K., Assimakopoulos, V., & Hamari, J.	2021	Gamification to avoid cognitive biases: An experiment of gamifying a forecasting course.	Experimental Technique	Gamification may help individuals understand objectives and their significance, guide them along directed avenues, provide them with instant feedback, reward

					achievements, and break down difficult content into simple activities. While the platform can adjust the difficulty to the customer's capabilities, gamification techniques can let individuals pick between many advancement tracks and achieve personal objectives.
32.	Lubbe, L. M., Gerritsen, C., Klein, M. C., & Hindriks, K. V.	2021	Empowering vulnerable target groups with serious games and gamification.	Structured Literature Review	The study demonstrated that serious gaming and gamification may be used for a wide range of behaviours, which is frequently viewed favourably by prospective users and has advantageous outcomes. Empowerment can be aided with a gamified app or serious gaming. Gamified apps and serious games are readily available means of reaching an extensive demographic.
33.	Lubart, A., & Capelli, S.	2024	Gamification of the point of sale using hybrid-reality games: Non-players' negative influence on players' service experience.	Critical Incident Technique	The study found that stereotypical thinking and roles that are imposed by non-players make players feel obligated to fit in. Players then experience exclusion and harsh judgement at the POS. Lastly, a bad encounter lowers players' pleasure with the POS, which in turn lowers their desire to return and spread the news about it.
34.	Maucuer, R., Renaud, A., Ronteau, S., & Muzellec, L.	2022	What can we learn from marketers? A bibliometric analysis of the marketing literature on business model research.	bibliometric analysis	The use of AI algorithms, gamification, social media interfaces (for B2C businesses), electronic data exchange, and other innovations have caused data-based company structures to evolve.
35.	McHenry, W. K., & Makarius, E. E.	2023	Understanding gamification experiences with the benefits dependency network lens.	Participant Observation	The aspects of gamification can increase motivation as well as participation, especially in the more prevalent online spaces that have

					been left over from COVID-19. Learners in Generation Z are receptive to gamification. As a result, teachers and instructors will have to upskill themselves to integrate this concept more widely in the coming years.
36.	Puspitasari, I., Rusydi, F., Nuzulita, N., & Hsiao, C. S.	2023	Investigating the role of utilitarian and hedonic goals in characterizing customer loyalty in E-marketplaces	PLS SEM	The results demonstrate that consumer happiness is more impacted by the satisfying of hedonistic principles through feelings of enjoyment than by utilitarian principles such as perceived service excellence. Customer loyalty is strengthened by perceived excitement, personalisation, and overall satisfaction.
37.	Qian, T. Y., Yu, B., Matz, R., Luo, L., & Xu, C.	2023	Gamification for consumer loyalty: An exploration of unobserved heterogeneity in gamified esports social live streaming.	Survey Methodology	Gamification through socialisation increased loyalty among individuals who were less "game-identified", immersion gamification increased loyalty among consumers who were highly "game-identified", achievement gamification increased loyalty across every stage of "identification", perceived usefulness had a greater impact on loyalty among users who were "less game-identified", while perceived ease increased loyalty more between users who were "highly game-identified".
38.	Rizvanović, B., Zutshi, A., Grilo, A., & Nodehi, T.	2023	Linking the potentials of extended digital marketing impact and start-up growth: Developing a macro-dynamic framework of start-up growth drivers supported by digital marketing.	Systematic Literature Review	Interaction, a variety of content, and digital mediums allow for smooth and customised interaction with customers. Social media is typically used by customers who employ digital resources during the purchasing process
39.	Rodrigues, L. F.,	2019	Main gamification	Literature Review	The utilisation of

	Oliveira, A., & Rodrigues, H.		concepts: A systematic mapping study.		gamification for company operations has grown significantly, since it plays a significant role, is valued for the diversity of individuals, and helps to encourage people to engage with gamified services.
40.	Rodrigues, R. G., Silva, R., Leal, C., & Mainardes, E. W.	2021	Marketing differences study motivations between Luso and Brazil students.	Experimental Research	Gamification can play a crucial role in enhancing the aspects of learning among the students.
41.	Rosillo-Díaz, E., Muñoz-Rosas, J. F., & Blanco-Encomienda, F. J.	2024	Impact of heuristic-systematic cues on the purchase intention of the electronic commerce consumer through the perception of product quality	Quantitative Research Approach	Purchase intention is favourably and considerably influenced by perceived product quality, which is in turn both positively and considerably influenced by the number of evaluations, brand experience, review utility, and source reliability. Purchase intention and the item's performance risk are also found to be significantly and negatively correlated.
42.	Roy, S. K., Singh, G., Sadeque, S., Harrigan, P., & Coussement, K.	2023	Customer engagement with digitalized interactive platforms in retailing.	hybrid SEM-ANN approach	All three aspects of client engagement, cognitive, emotive, and behavioural, have a strong correlation with expertise and independence. Emotional and behavioural involvement have a greater impact on personal well-being than cognitive involvement.
43.	Santa Cruz, E., Baranda, A., Illanes, E., Rioja, P., Rios, Y., Riesco, S., & da Quinta, N.	2024	Co-creating a gamification tool for children and parents to improve their food nutrition Knowledge and dietary habits.	validated questionnaires, qualitative methodologies	Nutrition, long-term viability waste from food, culinary science, culinary sensory qualities, and technologies particularly for adults as well as kids were all covered in the platform's multiple sections.
44.	Santos, P. M., Dias, J. M., & Bairrada, C. M.	2024	Gamification in marketing: Insights on current and future research directions based on a	Bibliometric Analysis	Gamification is the process of applying game design, factors, and elements to non-gaming environments in order to

			bibliometric and theories, contexts, characteristics and methodologies analysis.		render an item, service, or program more entertaining, inspiring, and compelling.
45.	Sharma, W., Lim, W. M., Kumar, S., Verma, A., & Kumra, R.	2024	Game on! A state-of-the-art overview of doing business with gamification.	Literature Review	The process of using aspects of game development to change operations, products, services, and structures such that they deliver sensations akin to those found in gaming is known as gamification.
46.	Singh, P.	2024	Beyond the basics: Exploring the impact of social media marketing enablers on business success	Extensive Literature Review	A company's success with social media marketing is greatly influenced by customer service, platform trust, safe data collaboration, and perceived usefulness.
47.	Singh, A., Rana, N. P., & Parayitam, S.	2022	Role of social currency in customer experience and co-creation intention in online travel agencies: Moderation of attitude and subjective norms.	Regression Analysis	The findings showed that the consumer experience has a positive correlation with (i) social currency, (ii) mentality, and (iii) subjective standards. The results also showed that the association between social capital and the consumer experience is moderated by disposition and personal standards.
48.	Unternährer, C., Termine, F., & De Santo, A.	2024	Enhancing Knowledge Transmission: The Perspective of Gamification User Profiles.	User surveys and behavior-tracking data	Age influences the achiever and philanthropist demographics, but people with more managerial responsibilities are also more inclined to be categorised as socialisers, free spirits, or philanthropists. Furthermore, the research indicates that users who are socialisers or disruptors are more inclined to absorb or respond to information that their peers have developed on their own.
49.	Wang, R., Bush-Evans, R., Arden-Close, E., Bolat, E., McAlaney, J., Hodge, S., ... & Phalp, K.	2023	Transparency in persuasive technology, immersive technology, and online marketing: Facilitating users' informed decision	Literature Review	Gamification has been used extensively in technology to help people adapt and continue using it, which has an opportunity to

			making and practical implications.		encourage good behaviour change, particularly in relation to adolescents and mental health.
50.	Wasiq, M., Bashar, A., Khan, I., & Nyagadza, B.	2024	Unveiling customer engagement dynamics in the metaverse: A retrospective bibliometric and topic modelling investigation.	Bibliometric Technique	Customer engagement tactics in the metaverse are changing, with a focus on comprehensive interface design, customisation and adaptation, and the consequences of virtual encounters for engagement and involvement.
51.	Wasiq, M., Bashar, A., Nyagadza, B., & Johri, A.	2024	Deciphering the evolution of metaverse-A techno-functional perspective in digital marketing.	Literature Review	Primary perspectives on the function of IT in metaverse advertising studies emerged: user interface, client engagement, metaverse technological integration, virtual products and experience layout, and global social relationships. VR, virtual gadgets, virtual socialisation, marketing in virtual environments, and user behaviours and tastes are the research's main sub-themes.
52.	Weretecki, P., Greve, G., Bates, K., & Henseler, J.	2021	Information management can't be all fun and games, can it? How gamified experiences foster information exchange in multi-actor service ecosystems.	Structural equation modeling	Gamification may be effectively used when dealing with sizable populations that have a wide range of traits, histories, and incentives. The findings suggested that experiencing value is a good fit for a reliable gamification assessment tool.
53.	Xi, N., & Hamari, J.	2020	Does gamification affect brand engagement and equity? A study in online brand communities.	Empirical Study	A favourable correlation between all three types of brand engagement (psychological, cognitive, and interpersonal) and gamification characteristics that pertain to accomplishment and interpersonal relationships.
54.	Zhang, Z., Niu, P., Li, C., & Feng, Y. (2024).	2024	Does using a green gaming system make	Questionnaire Survey	Environmentally conscious behaviour is

			people environmentally friendly?.	more	indirectly encouraged by the incentives created through the use of green online gaming platforms. The continuum of expertise, social overabundance and green participation are some of the psychological mechanisms at play.
55.	Zhu, T., Liu, X., Wang, Y., Zhang, L., Zhang, H., Sun, T., ... & Fu, L.	2023	Digital Twin-based shop-floor scheduling service gamification.	A five-dimensional workshop	Game aspects to non-gaming contexts, gamification involves incorporating game mechanisms and game theory to promote more effective activities outside of games. Gamification is a well-known strategy that can boost employee satisfaction and motivation and improve efficiency

5. REVIEW RESULTS AND DISCUSSION

Aiolfi and Luceri (2024) methodically compiled the expanding body of research in order to comprehend the complex relationships between consumer behaviour and marketing strategies. In order to do this, a thorough bibliometric evaluation was conducted utilising quantitative analytic tools like VOSviewer and SciMAT, taking into account 284 Web of Science articles on the Metaverse in enterprise, leadership, advertising, and marketing. The findings revealed that businesses looking to invest in the Metaverse need to understand the relationships, patterns, and dynamics that characterise online gaming societies. It is crucial to evaluate their effects on companies and how they might interact with clients if gaming is the main medium in these realms.

Alsoud et al. (2024) determined whether marketing for entertainment material influences consumers' adaptation to the metaverse. PLS-SEM showed that metaverse intention was improved by each of the 5 parameters. The intention to shop in the metaverse is boosted by "continuity", a "sense of presence", "interoperability", "economic flow", and "concurrence".

Aparicio et al. (2021) developed an empirical framework that identified the factors that influence repurchase intention. The SEM/PLS methodology was used to analyse the data. The findings showed that trust has a beneficial effect on e-commerce intent, buy frequency range, and intentions to repurchase. E-commerce systems' usability and ease of use influence users' intentions to utilise them. The study confirmed that reputation affected trust and gamification affected how successfully e-commerce platforms were used. The findings showed that gamified online stores track consumption and that, in the setting of

e-commerce, utilisation has a positive impact on intention to repurchase. Similarly, García-Jurado et al. (2021) investigated how gamification affects e-commerce customer engagement. Information from 253 Spanish Amazon consumers was gathered via a customer feedback survey. According to the current research, gamification directly affects Internet commerce customer engagement.

In order to address the company's opposition throughout the COVID-19 outbreak, two prominent digital multi-sided platforms (MSP) e-commerce new businesses, Shopee and Bukalapak, implemented unconventional and incrementally innovative approaches, respectively. Gunawan et al. (2022) contrasted the impact of tactical entrepreneurship through these approaches. As a sign of inventiveness, the data also demonstrated that perceived pleasure and fulfilled involvement have a favourable effect on continuation desire. The consumer engagement in the Shopee instance, which implements radical innovation, is important, yet in the Bukalapak scenario, which implements incremental changes, it has no bearing on the desire to continue.

Högborg et al. (2019) aimed to understand how gamification helps consumers create value in a retail setting and the way this generation of value connects to brand participation. The results demonstrated that gamification has an impact on an activity's hedonic value and that its beneficial effects may assist in clarifying this impact. It was discovered that this hedonic value was a more accurate indicator of the desire to continue engaging in comparison to the fulfilment of a reward. Lastly, there is a good correlation between brand engagement and gamification via ongoing engagement purposes.

Huang et al. (2024) demonstrated how environmental gamification can moderate the association between social media advertising and consumer-brand interaction using analysis of Ant Forest Gen Z individuals. According to this investigation, Ant Forest's consumer-brand interaction is directly impacted by the 4 social media advertising aspects of recreational activities, trendiness, modification, and word-of-mouth in a statistically substantial way. Furthermore, Ant Forest gamification significantly modifies the link between modernity and consumer-brand interaction negatively while significantly modulating the association between personalisation and consumer-brand interaction.

Using a Structural Equation Model (SEM) to shed light on consumer behaviour, Asanprakit & Kraiwanit (2023) explored the underlying variables driving the widespread use of digital s-commerce venues. The results show that s-commerce platform utilisation and motivation among users are directly impacted by "social", "technological", "platform", and "economic" aspects. Furthermore, motivation has a direct effect on platform utilisation; past trends are also taken into account, demonstrating the persistent significance of inspiration in platform adoption as a mediator of other variables.

Aulia et al. (2024) investigated how gamification components affect users' intentions to purchase on an on-demand service network. This study adds gamification components, contentment, and participation to the TAM's theoretical framework. Surveys were used to gather data, and SEM GSCA was used for analysis. According to this research, user intent to purchase is significantly and considerably impacted by points and awards.

In order to give a thorough grasp of e-commerce studies centred on previous work, Bai and Li (2022) in their investigation looked at how academic subjects and patterns have evolved in the e-commerce sector. Studies discovered that over the course of the 20-year study, many research themes, like "eGovernment" and the "recommended system", have remained significant and have been regularly examined. The past couple of decades have seen the emergence of several new study areas, including cloud computing, mobile technology, AI, and the study of machine learning.

Bitrián et al. (2021) explored how gamification may promote user involvement and successful marketing results, relying on the self-system framework for motivational growth. PLS regression was used to analyse data from 276 customers of a mobile gamified application. The findings demonstrated that by meeting users' demands for competence, independence, and proximity, gamification raises customer engagement. Increased intention to employ, spread word-of-mouth about, and give the application a high rating are all results of user involvement.

Blanco et al. (2023) analysed the application of gamification and how it may enhance the software assessment of pupil achievement and level of interest. The

findings demonstrated that learners who took part in the gamification process performed more effectively and were more interested. Moreover, the data analysis revealed that the conceptualisation of the gamification encounter is a crucial component of success. To keep pupils interested over the entire process, it's critical to disperse the gamification's stimulating stimuli.

Bräuer and Mazarakis (2022) explained how gamification, when applied through audio, can help participants work more quickly and become more motivated. To encourage individuals to do household chores, Alexa Skills incorporated game design features like points and stages through audio output. The findings indicated a significant impact on the participants. The audio-gamification had a favourable impact on their mindset as well as how long it took them to complete the assignments. The results showed that audio gamification holds great promise for the voice assistance industry.

Brito Silva and de Oliveira Campos (2024) aimed to understand the current level of avatar marketing using a comprehensive methodical examination. The study findings depicted that avatars improve communication with marketers and fulfilment in an interactive actuality, guaranteeing customer engagement. Corporations are concentrating on creating more complicated avatars in recognition of innovations in technology. Using an avatar to represent a brand can improve the interaction relationship between the business and its customers by fostering an impression of collaboration in the virtual environment. Additionally, avatars, such as agents of businesses, can serve as powerful digital salespeople, increasing customer satisfaction, fostering a more favourable attitude regarding the good or service, and increasing the likelihood that they will buy it.

Buhalis et al. (2023) presented an outline of how tourist administration and advertising can be transformed by the Metaverse. Worldwide populations are predicted to grow more acquainted with digital services, technology, products, and practically the complete online economy as a result of their adoption of sophisticated online amenities. People who are tech-ready and tech-competent are likely to embrace the world of the Metaverse to the extent that it is readily available, reasonably priced, usable, and provides an enjoyable experience and worth. Before weighing their alternatives and arriving at judgements about what to buy, they are going to be allowed to submerge themselves in various Metaverse landscapes and participate in virtual tourism events and adventures.

Chen et al. (2024) examined how stimuli affected customers' psychological, behavioural, and attitudinal reactions to XR-driven internet shopping as well as the ways in which technical, customer, and product-driven aspects interacted. Findings suggested that XR can give individual customers realistic, engaging 3D shopping events, including the ability to evaluate clothes and other apparel and enhance the service or goods details to help them make online purchases. Understanding how XR

impacts individual customers during their internet purchasing is essential to bolstering its usage in B2C electronic commerce, as the achievement of XR deployment in e-commerce depends on customers' willingness to use XR in this procedure.

Dzandu et al. (2022) explored how gamification of mobile money payments (Gmmp) may create value for customers via its social impact by developing and testing a combined framework of social effect and value to clients' philosophies. Internalisation, regulation, and identification were the 3 social effect dimensions with which the Gmmp was determined to have a strongly favourable association. However, all of the consumer value elements, customer involvement, contentment, and loyalty, were strongly predicted by compliance; loyalty and contentment were significantly anticipated by recognition; and none of the consumer value results were substantially predicted by internalisation.

Evans et al. (2024) examined food cues in films posted by influencers who are probably well-liked by teenagers on Twitch, the most popular site for broadcasting live video games. Food cues have been designated employing the UK Nutrient Profiling Framework and a World Health Organisation (WHO) methodology for exposures (e.g., display kind, the nutritional value) and strength (e.g., appearance). Energy beverages were among the most prominent food groups, and the majority of the cues were High in fats, salt and/or sugar foods. The majority of cues were branded and displayed as looping images or placement of goods. Healthy foods had a higher probability of being consumed by followers than High in fats, salt and/or sugar foods.

Employing an ecological interpretation approach, Fernández-Ruano et al. (2022) aimed to add to the body of knowledge regarding the development of customer-based destination brand equity (CBDDE). The findings indicate that a gamified ecological comprehension scenario has a greater influence on CBDDE than a non-gamified one and that this impact is stronger for individuals who believe that their location is relatively close.

Högberg et al. (2019) examined the impact of gamification on in-store mobile advertising. More precisely, it looked into how gamification affected consumers' propensity to take advantage of deals they find at the point of sale. The clients' conduct was examined using eye tracking, smartphone activity monitoring, and decision. The findings showed that gamification was not always effective at making people more likely to take advantage of offerings. Participation in a gamified purchasing task was required; otherwise, gamification may even reduce the propensity to take action on offerings.

Humlung and Haddara (2019) looked into the most recent studies on the possibility of using gamification approaches to create settings in firms that foster innovation. According to research, gamification strategies may help overcome the gap between the technological and social facets of an organisation's culture.

Jang and Kim (2022) investigated the geographically varied links between visitors' gamified events, location interest and recognition from society, and workout behavioural engagement. According to this research, gamified experiences affected local and tourist visitors' exercise lengths and timeframes differently. Additionally, different gamified encounter types and independent and clustered sites have different effects on the user's gamification-engagement correlation.

Khan et al. (2022) assessed the behaviour of abandoning shopping carts as a result of avoiding advertisements on social media networks. According to the research, if a customer gets distracted by pointless material or messages, avoiding ads can help them understand why they would abandon an item or brand in their shopping basket. Gamification of advertisements with appropriate material is one strategy to enhance the experiences of social commerce customers. This could benefit hedonistically and emotionally encouraged social commerce individuals who find advertisements on social media platforms interesting, which would lower abandonment rates for shopping carts.

Koh and Seah (2023) examined how product selection judgements are impacted by low-stock, operation, countdown, and limited-time messaging dark themes. The findings showed that choosing items with dark-coloured patterns was substantially more common among respondents. Compared to other dark trends, the limited-time messaging dark pattern was much more successful at promoting consumption. Dark patterns are more likely to affect elderly people. The efficacy of an activity and video-based dark patterns awareness approach was not clearly demonstrated.

In order to strengthen vulnerable demographics, Lubbe et al. (2021) attempted to provide insights within the realm of serious gaming and gamification. The study demonstrated that serious gaming and gamification may be used for a wide range of behaviours, which is frequently viewed favourably by prospective users and has advantageous outcomes. Empowerment can be aided with a gamified app or serious gaming. Gamified apps and serious games are readily available means of reaching an extensive demographic.

Lubart & Capelli (2024) studied the impact of technology on interactions between customers at the point-of-sale system (POS), the social setting in which gamification occurs, and the unfavourable effects of gamification. The study found that stereotypical thinking and roles that are imposed by non-players make players feel obligated to fit in. Players then experience exclusion and harsh judgement at the POS. Lastly, a bad encounter lowers players' pleasure with the POS, which in turn lowers their desire to return and spread the news about it.

McHenry and Makarius (2023) explored how broadening the perspectives on the commencement environment can enhance gamification during educational and training sessions. The study findings found that aspects of

gamification can increase motivation as well as participation, especially in the more prevalent online spaces that have been left over from COVID-19. Learners in Generation Z are receptive to gamification. As a result, teachers and instructors will have to upskill themselves to integrate this concept more widely in the coming years. The findings are similar to the study conducted by Rodrigues et al. (2021) which suggested that gamification can play a crucial role in enhancing the aspects of learning among the students.

Puspitasari et al. (2023) used a recently suggested e-marketplace Customer Loyalty Framework to examine the elements influencing consumer choices and commitment in Indonesian online marketplaces. The results demonstrate that consumer happiness is more impacted by the satisfying of hedonistic principles through feelings of enjoyment than by utilitarian principles such as perceived service excellence. Customer loyalty is strengthened by perceived excitement, personalisation, and overall satisfaction.

Qian et al. (2023) evaluated the impact of gamification on esports customer loyalty. According to the investigation, the growth of gamified social live-streaming (SLS) networks in recent years has helped Esport. Additionally, gamification through socialisation increased loyalty among individuals who were less "game-identified", immersion gamification increased loyalty among consumers who were highly "game-identified", achievement gamification increased loyalty across every stage of "identification", perceived usefulness had a greater impact on loyalty among users who were "less game-identified", while perceived ease increased loyalty more between users who were "highly game-identified".

Rodrigues et al. (2019) assessed the role of gamification in the e-Commerce industry. The utilisation of gamification for company operations has grown significantly, since it plays a significant role, is valued for the diversity of individuals, and helps to encourage people to engage with gamified services. Several scholars and other stakeholders now agree with this established fact. Increasingly researchers and companies are gradually attempting to gamify various facets of their job in order to boost customer satisfaction or inspire personal growth.

Roy et al. (2023) examined the precedents and effects of consumer engagement with a digitalised interactive interface of an online shoe retail start-up. Results indicated that all three aspects of client engagement, cognitive, emotive, and behavioural, have a strong correlation with expertise and independence. The findings also indicated that emotional and behavioural involvement have a greater impact on personal well-being than cognitive involvement.

Santa Cruz et al. (2024) created and evaluated a platform with kids and their carers in mind, offering an interactive environment where youngsters may gain knowledge about nutrition via gamification. Nutrition, long-term viability

waste from food, culinary science, culinary sensory qualities, and technologies particularly for adults as well as kids were all covered in the platform's multiple sections. Employing a language appropriate for their respective ages and comprehension, chatbots and other gamification tools can be employed for educational reasons to teach kids the fundamentals of ecologically friendly and wholesome eating habits from a young age.

Santos et al. (2024) gathered information about the present and potential future paths of gamification and marketing analysis. It was found that leading corporations like Nike, Amazon, and Starbucks have demonstrated that gamification has gained relevance in the world of marketing in the past few years by incorporating gamification into more and more areas of their marketing campaigns. Gamification is the process of applying game design, factors, and elements to non-gaming environments in order to render an item, service, or program more entertaining, inspiring, and compelling. It may additionally be defined as a collection of procedures and actions used to address issues through utilising or leveraging the features of game elements. By 2026, the international gamification industry is expected to have grown from its 2020 valuation of dollar10.19 billion to dollar 38.42 billion. Similarly, Sharma et al. (2024) revealed that the process of using aspects of game development to change operations, products, services, and structures such that they deliver sensations akin to those found in gaming is known as gamification. These components, which encourage and reward problem-solving procedures and operations, comprise ranking systems, badges, and scores. The use of gamification is becoming more and more popular among firms and business analysts.

Along similar lines, Wang et al. (2023) revealed that gamification has been used extensively in technology to help people adapt and continue using it, which has an opportunity to encourage good behaviour change, particularly in relation to adolescents and mental health. But there are possible dangers and moral issues as well, like the claim that gamification is incompatible with human development and that it may be "morally destructive by negatively affecting personality."

Singh et al. (2022) examined the association between social currency and client satisfaction with online travel firms. The findings showed that the consumer experience has a positive correlation with (i) social currency, (ii) mentality, and (iii) subjective standards. The results also showed that the association between social capital and the consumer experience is moderated by disposition and personal standards. Lastly, consumers' inclination to co-create is positively predicted by their overall experience.

Unternährer et al. (2024) in their research presented Colearnis, an innovative tool for transferring knowledge that enables peers to impart information in a gamified way through employee-generated films and quizzes. The relationships among user information and Colearnis engagement behaviours are investigated in the present

research. According to the results, age influences the achiever and philanthropist demographics, but people with more managerial responsibilities are also more inclined to be categorised as socialisers, free spirits, or philanthropists. Furthermore, the research indicates that users who are socialisers or disruptors are more inclined to absorb or respond to information that their peers have developed on their own. Conversely, achiever individuals are less inclined to initiate surveys or respond.

Wasiq et al. (2024a) examined customer participation in the metaverse using subject modelling and historical bibliometrics. The results obtained demonstrated how customer engagement tactics in the metaverse are changing, with a focus on comprehensive interface design, customisation and adaptation, and the consequences of virtual encounters for engagement and involvement. Identically, Wasiq et al. (2024b) analyse the developing topic of metaverse marketing within the framework of information technology. Following a review of the published work, 5 primary perspectives on the function of IT in metaverse advertising studies emerged: user interface, client engagement, metaverse technological integration, virtual products and experience layout, and global social relationships. VR, virtual gadgets, virtual socialisation, marketing in virtual environments, and user behaviours and tastes are the research's main sub-themes.

Weretecki et al. (2021) explored the possibility of using gamified encounters to promote consumers' information-sharing behaviour within a multi-actor service environment. The results also implied that gamification may be effectively used when dealing with sizable populations that have a wide range of traits, histories, and incentives. Furthermore, the findings suggested that experiencing value is a good fit for a reliable gamification assessment tool.

Xi and Hamari (2020) analysed how customers of 2 online gamified brand networks relate to gamification, engagement with the brand, and brand equity. The findings demonstrated a favourable correlation between all three types of brand engagement (psychological, cognitive, and interpersonal) and gamification characteristics that pertain to accomplishment and interpersonal relationships. Especially interpersonal brand engagement was favourably correlated with gamification aspects linked to immersion. Furthermore, brand equity had a favourable association with brand engagement. The findings suggest that gamification can enhance perceived value and favourably impact brand engagement, indicating that it seems to be a successful brand management strategy.

Zhang et al. (2024) intended to investigate the relationship between real pro-environmental actions and green gaming technologies. The findings demonstrated that environmentally conscious behaviour is indirectly encouraged by the incentives created through the use of green online gaming platforms. The continuum of expertise, social overabundance and green participation are some of the psychological mechanisms at play. In

particular, user green involvement is a vital link between virtual activities and actual environmental behaviour. Additionally, the conversion of online interactions into actual pro-environmental behaviour is greatly aided by perceived legitimacy.

Zhu et al. (2023) analysed the concept of gamification of shop floor scheduling services using digital twins. The study revealed that by applying game aspects to non-gaming contexts, gamification involves incorporating game mechanisms and game theory to promote more effective activities outside of games. Gamification is a well-known strategy that can boost employee satisfaction and motivation and improve efficiency. Consequently, the issues that schedulers experience, such as monotonous, uninteresting, and uninspiring procedures, can be resolved by implementing the notion of gamification according to digital twin human-machine contact and implementing suitable gamification features to increase the enjoyment of scheduler-machine engagement.

6. CONCLUSION

While analysing the impact of gamification on customer behaviour in the e-commerce industry, it was found that customer behaviour is extensively impacted by gamification as it helps in decision-making and enhances engagement via utilitarian and hedonic motivations. In this context, Hogberg et al. (2019) asserted that gamification helped in developing hedonic values that in turn assist customers in continuing to engage with the e-commerce platforms. Identically, Aparicio et al. (2021) suggested that usability, reputation and trust beneficially influence repurchase intentions. Therefore, gamification rebuilds customer conduct enhancing repeat interactions and enhancing loyalty.

The next objective of the study was to assess the elements of gamification that impact customer engagement in the e-commerce industry. These elements included points, badges and leaderboards as suggested by García-Jurado et al. (2021). Moreover, Bitrián et al. (2021) highlighted that the customer's requirements about relatedness, autonomy and competency via gamification encourage engagement, impacting the possibility of word-of-mouth recommendations and the enhanced usage of the platform.

The study further determined how customer experience and satisfaction vary regarding the employment of gamification in the e-commerce industry. It was found that personalised interactions along with the introduction of gaming elements led to huge variations concerning customer experience and satisfaction. Different scholars indicated that distinct findings, like Hoberg et al. (2019) suggested that gamification adds hedonic values to customer experiences, while Aulia et al. (2024) emphasised that gamification enhanced customer satisfaction by fulfilling the intrinsic motivational requirements.

The study also analysed the impact of gamification on customer loyalty and purchase decisions in the e-commerce industry. It was found that by providing

personalised incentives and developing engaging purchase routes, gamification leads to enhanced customer loyalty. Further, the study conducted by Qian et al. (2023) also showcased that gamification techniques that are social, achievement-driven, and immersion-focused increase customer loyalty at a range of user identification degrees.

Finally, concerning the benefits and challenges of integrating gamification in the e-commerce industry, the literature review depicted that several benefits like improved brand loyalty, good user satisfaction and increased engagement are associated with gamification. On the other hand, several challenges associated with this concept include balancing the preferences of the users, avoiding fatigue as a result of excessive gamification, and use of resources and design elements to implement gamification to enhance the customer experiences and the goals of the organisation.

7. LIMITATION OF STUDY

A major limitation of the present research study is that it takes into account only the articles published between 2018 to 2024. This may have led to the exclusion of research studies before this time frame which may have proved to be imperative in the present study context concerning the long-term impact of gamification on the e-commerce industry.

8. SCOPE FOR FUTURE RESEARCH

Future research studies can be used to identify the impact of Augmented reality and Virtual Reality in improving gamified e-commerce experiences. Future research studies can also be conducted to determine the cross-cultural perspectives pertaining to gamification in order to comprehend its efficacy in distinct geographical and demographical contexts thus drawing generalisable insights.

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