Gamification on OTT Platforms: A Behavioural Study for User Engagement

Komal Suryavanshi[1], Prasun Gahlot[2], Surya Bahadur Thapa[3], Dr. Aradhana Gandhi[4], Dr. Ramakrishnan Raman[5]
Research Scholar, Symbiosis Center for Research & Innovation (SCRI), Symbiosis Centre for Behavioural Studies, Symbiosis Institute of Business Management, Symbiosis International (Deemed University), Pune, India[1, 2, 3]
Professor (Retail and Marketing), Symbiosis Centre for Behavioural Studies, Symbiosis Institute of Business Management, Symbiosis International (Deemed University), Pune, India[4]
Director, Symbiosis Institute of Business Management, Symbiosis International (Deemed University), Pune, India[5]

***Abstract*—This study examines the consumer's visual attention toward gamification options while watching the OTT (Over-the-top) online content. Also, the impact of gamification on user engagement (UE) on the OTT platform was studied using data collected by conducting an eye-tracking experiment and subsequently using a user engagement scale (UES). The study was carried out at the marketing and behavioural lab of a management institute in India using the OTT platform website and Tobii eye-tracker. Empirical data was collected from 52 respondents within the age group between 23 to 35 years. The relation between Attention to Gamification (AG), Reward Satisfaction (RS), and User Engagement (UE) were studied by running a mediating linear regression analysis. From the results, it was found that respondents were equally interested in watching the online content as well as ready to explore the gamification options. The research findings demonstrate that Reward Satisfaction (RS) acted as a mediating factor in the relation between Attention to Gamification (AG) and User Engagement (UE). This study adds to the literature on consumer engagement towards gamification on the OTT platform, where the literature is still limited. Future research could consider mobile apps as a platform to undertake the study. This study aimed to empirically test the effect of AG on UE with the involvement of RS as a mediator. The study is the first of its type to use eye-tracking data to understand the impact of gamification on the OTT platform**.

***Keywords*—Gamification; user engagement; eye-tracking; OTT (Over-the-top); reward; visual attention**

I. Introduction

Technology is proliferating, and the internet offers a new way of entertainment, which has augmented the adoption of Over-the-top (OTT) media. The OTT platforms are a significant by-product of the expansion and exploration of digital media. The OTT market is anticipated to grow at a compounded annual growth rate (CAGR) of 14.3 % to reach US $86.80 billion by 2026 [1]. This growth is due to easily accessible and inexpensive internet connections and low-cost subscription-based OTT platforms. With technological advancements in handheld devices, viewers can see content, including videos, movies, series, etc., anytime and anywhere. OTT service platforms like Netflix, Disney Hotstar, Amazon Prime, Discovery Plus, YouTube, EPIC ON, ZEE5, and others enable viewing movies, series, TV shows, and other content at a click. The OTT market has steadily and slowly shaken the linear, complex, and vertically unified television distribution industry, which has been dominated for years by traditional pay television channels [2]. The stagnancy of the conventional television market created a vacuum in the media market. OTT platforms have seized this chance to strategize about how to engage with their customers more effectively, micro-target them, customize their products, and take advantage of the impending media collapse. This has eventually created an inspiring and level-playing scenario for OTT content providers [3]. Thus, to stay in the competition, many OTT platforms have implemented gamification to provide value-added engagement to customers [4]. Gamification is implemented to increase awareness about the gamified platform, achieve a prominent presence in the market, develop its user base, strengthen the bonds with the viewers, and improve consumer engagement.

With multiple players in the OTT market, operators aim to understand and offer services that cater to the viewer's demand by analysing the subscriber's preferences, thereby transforming how consumers consume online media content. The streaming platforms provide viewers with the freedom to select and access the content of their choice. Many platform providers have adopted operational changes concerning content creation, representation, and delivery to attract customers and gain their loyalty, as well as the introduction of gamification to encourage customers to participate actively. Games are essential to motivation and engagement when applied to interactive platforms [5]. Gamification refers to playing games on the platform to achieve rewards that can be redeemed in return and generate consumer engagement [6]. It is a concept of improving services with value addition to gaming experiences [7]. With gamification, consumers play games and enjoy the experience, irrespective of the result, thus increasing their involvement with the gamified platform [8] [9]. With gamification tools, consumers participate in interactive games, puzzles, questions, fantasy points, leader boards, bids, auctions, badges, feedback challenges, performance or game progress bars, lotteries, countdowns, and other options alongside viewing content. Affordances (points, badges, and leader boards) in gamification are the elements that form game structure and induce gameful experiences. The user interfaces with gamification and rewards (incentive to play games) shape consumer behaviour [8]. Gamification has attracted many retailers and e-commerce giants to include it for engaging customers with loyalty programs, impacting consumers' buying decisions and incremental sales [10]. The point-of-purchase

marketing was improved for offline and online stores that included gamification in the purchase process [11]. Gamification impacts viewers' behavioral outcomes, increasing platform involvement, and engagement [7]. Gamification in the marketing campaign comprises four levels: "attract, engage, retain, and reward" [12], with the ultimate goal of enhancing participation. Investigating gamification implementation in the context of the OTT platform is of significant importance as the OTT platforms are featured with online content viewing, which leads to involvement, interaction, and playful machination of the everyday world. Gamification enhances motivation [13]; therefore, the impact of gamification on customers' intention to engage on the OTT platform deserves investigation.

Concerning the OTT platforms, studies have mainly concentrated on examining the factors impacting the adaption and adoption of OTT platforms by the viewers [14]. Other studies include the OTT business models and approaches for business extension [15]. Even though OTT platforms have become part of everyday media, the studies related to the adoption and effect of gamification on OTT platforms are limited. ZEE5 (OTT platform) started ZEE5 Super Family (ZSF), a gaming experience for fictional content viewers [4]. EPIC ON has incorporated games that let the viewers redeem the rewards with coupons and discounts. Thus, this study tries to understand if implementing gamification on the OTT platforms improves customer engagement with the following research questions-

RQ1: Does the customer pay equal attention to the gamification option while watching the online content on the OTT platform?

RQ2: Does the option to earn rewards on playing the game act as a mediator between attention to gamification and customer engagement on the OTT platform?

To address the above research questions, this study considered the EPIC ON OTT website platform and collected users' visual attention data from an eye-tracking device to investigate the effectiveness of gamification on OTT. Indian OTT market is set to arise as the next biggest OTT market to reach the value of ₹ 138 billion by the end of the financial year 2023 with an estimated growth of 45%, following the USA [3]. OTT platforms have therefore been forced to implement structural changes to improve user engagement and retention. Many OTT service providers have embedded gamification into their platforms. This technological and structural update provides an important context that answers the research questions.

The objective of this study is two-fold. Firstly, a lab experiment was conducted using eye-tracking software to investigate customers' visual attention towards the option to watch and play the game on the OTT platform. Secondly, the study examined the impact of reward as a mediator for attention to gamification and user engagement. With the growing competitive environment in the local and international media marketplaces produced by global OTT services, it is vital to develop a new strategy for each OTT service through research that considers the viability of novel techniques like gamification. As of yet, the OTT platform is used to view content, but playing games on the OTT platform while watching content is a new concept. The results from this study contribute to the body of literature on OTT-based gamification and provide developers an insight into whether the implementation of gamification on OTT is feasible.

The remainder of this research paper is comprised as follows. First, the report starts with the literature review and formulates the hypotheses. Then, the paper presents the methods and outcome of the analysis. Thirdly, arguments on the findings and implications are mentioned. Lastly, the report provides limitations and directions for future research.

II. Literature Review

A. Gamification Research

Extensive use of the term *gamification* started an era ago [16]. Since its commencement, it has been implemented in diverse fields, including computer sciences, educational scenarios, the health care sector, tourism, governance, research, and marketing [17][18][19], to name a few. Gamification means utilizing game elements and collaborating with various platforms to improve engagement. It is an approach to implementing game design components in the non-gaming environment [16]. Gamification has been defined as "the process of using game mechanics with other forms of technology to increase engagement" [20]. Most of the description of gamification that has been published state that it adopts game-like strategies in non-game contexts and can engage users and produce value that users perceive [21]. When implementing gamification, the creation of customer engagement is necessary. If the users do not experience participation, the whole gamification process fails [7][6][16].

A few quantitative research studies have shown the causal relationship between gamification, purchasing decisions, and customer engagement. In human-computer interaction, "user engagement" describes how people interrelate with the technology that fascinates them. A study by [22] stated that gamification improves adoption via playfulness, making consumers curious about the innovative features and their relative advantage. With gamification, consumers comment on products or services, give reviews, and share the content, increasing active users and repeated visits [23]. Gamification consists of stages like- appeal, involve, hold, and monetize [12], with the final goal to engage customers on the platform [24]. Involvement in technology results in engagement from the interaction between an emotional, cognitive, and behavioural relationship [25]. Gamification has been successfully applied across the learning management system for the students, motivating and generating interest in the subjects [26]. Employee engagement and job interest have been seen to be improved with gamification [9]. Thus, much of the research in the past has focused on understanding the role of gamification in encouraging customer participation and enhancing engagement in areas including social media, e-commerce, fitness apps, etc. Previous researchers have considered engagement and its effect on users; these ideas involve studies related to loyalty [27][28], pleasure [27], conviction [29], commitment and emotional connection [30]. However, gamification has been implemented recently in the case of OTT platforms, so the research conducted to understand the influence on viewer engagement is limited [31].

Providing options to play games on the OTT platform offers gameful experiences for the users regardless of the outcomes [7]. The present work attempts to study the gap using an experimental design in a lab setting with an eye-tracking tool.

B. OTT Platform

The increased internet penetration and availability of multiple media platforms have stimulated video consumption via digital platforms. OTT service platforms, adopted from the TV set-top box, distribute video content using internet protocol. Reference [32] indicated that there had been a growing tendency toward the consumption of OTT platform content compared to traditional TV. Bypassing cable and satellite transmission, OTT video streaming services are defined as digital platforms providing consumers with handpicked content worldwide. A study by [33] stated that the pattern of complete streaming seasons for instant consumption has acted as a seed for the change from the television viewing culture to OTT content viewing. With the rapid growth in the media market, research studies have focused on user acceptance behaviour towards OTT platforms. Studies show that the content streamed over the platform and the involvement of consumers with it has played an essential role in consumers' reception and loyalty to the forum. This has led to unique content on the OTT platform that ensures enhanced experiences and consumer engagement [1]. Previous studies on consumer behaviour towards OTT platforms adopted expectation confirmation theory (ECT) [34] to understand the continued use intention of the consumers. The technology acceptance model (TAM) [35] was used to understand the motivation systems theory [36] regarding the consumer's choice of OTT platforms. With the increase in the number of OTT services and the number of viewers, [37] carried out user-centric research to study the user experience on the OTT platform (Netflix) based on uses and gratification theory (UGT) and TAM. Reference [38] used niche analysis and the Uses and Gratification Theory (UGT) to inspect the viewers' interest in the OTT platforms. As OTT platforms are in their innovative stage, the service providers are experimenting with different tools to increase engagement. Reference [39] conducted a literature review study on 262 articles based on the OTT phenomenon, adopting experimental analysis, descriptive analysis, case study method, survey, content analysis, and theoretical analysis. However, in India, the majority of the studies on the OTT have used survey techniques. Thus, this study fills a research gap by adopting a novel methodology like experimental design using eye tracking in the Indian context.

C. Customer Engagement (CE) Research

Customer engagement (CE) research has gained momentum. Gamification analysis primarily displays platform engagement [40]. Attention has been defined differently across various academic disciplines [41], and numerous definitions have been used to describe diverse engagement objects and subjects (e.g., brand engagement, customer engagement, student engagement, user engagement, employee engagement). In recent years, multiple studies have researched the relationship between gamification and various forms of engagement. Gamification implementation to motivate and engage students in academics has received the most attention, with education being the most fertile research field [42]. Nevertheless, research concerning engagement and gamification in contexts apart from education is getting attention rapidly. As mentioned in Table I, research studies have investigated the link between gamification and brand engagement [40],[60],[49]; customer engagement (e.g., [24], [9], [47], [48]); employee engagement (e.g., [61]) and user engagement (e.g. [55], [57]). The current study focuses on user engagement, which is driven by gamification and related reward.

TABLE I. STUDIES INVESTIGATING THE RELATIONSHIP BETWEEN ENGAGEMENT AND GAMIFICATION

Reference	Independent variables	Mediator/Moderator	Dependent variables	Research design	Key findings
Customer engagement					
Reference [24]	Game elements (challenge, tasks, rewards, badges, leader boards and win condition)	Customer engagement behaviours and customer engagement emotions	Reward, relationship, loyalty and Subversion	Geographic approach	The study identifies essential behaviours and processes of online customer interaction.
Reference [43]	Gamification mechanics for player types		Customer and employee Engagement	Case Study	Gamification may increase employee and customer engagement, enhancing how people interact with brands and businesses and boosting workplace efficiency.
Reference [44]	Gamification mechanics	Challenge, entertainment, social dynamics and escapism/ Medical predispositions and age	Patient engagement (cognitive, emotional and behavioural)	Case study	Patient engagement is increased due to the four experiential outcomes that gamification mechanisms generate in patients: challenge, amusement, social dynamics, and escape.
Reference [45]	Perceived usefulness, ease of use, social influence and	Customers' engagement intention	Brand attitude	Focus group and survey	Perceived enjoyment and usefulness forecast brand attitude and engagement intentions. These characteristics are not influenced by perceived ease of use. Only brand attitude is influenced by

	enjoyment				perceived social impact.
Reference [46]	Game elements		Brand awareness, tourist experiences, tourist engagement, customer loyalty, entertainment and employee management	Case study	Gamification can be used in tourism marketing
Reference [47]	Gamified customer benefits (epistemic, social integrative and personal integrative)	Age and experience	Customer engagement behaviour and purchase	Longitudinal design	Personal and social consolidative reimbursements are the best drivers of engagement and purchase
Reference [44]	Game elements (competition and cooperation)	Customer experience, losing a contest/Prior level of customer engagement	Customer engagement toward the co-creation activity (conscious attention, enthused participation and social connection) and community	Experiment	Win/lose choices fall apart the benefits of gamification. Losing a competition incorporates an adverse effect on client encounters and engagement.
Reference [48]	Gamification principles (social interaction, sense of control, goals, progress tracking, rewards and prompts)	Hope, compulsion, customer engagement	Purchases	Interviews and survey	Trust emphatically intercedes the relationship between gamification standards and client engagement. Compulsion decreases the plausibility of client engagement.
Brand Engagement					
Reference [49]	High interactivity; optimal challenge	Emotional brand engagement; cognitive brand engagement	Self-brand connection	Experiment	Gamified communications that are highly collaborating and optimally challenging enable self-brand connections.
Reference [24]	Challenge, tasks, rewards, badges, leader board, and win condition	Customer engagement behaviours, fun/enjoyment (flow), dissatisfaction	Reward, relationship, loyalty, subversion	Geographic approach	The findings distinguish primary forms and results of C and CEB inside virtual gamified stages.
Reference [50] [51]	Perceived mobility, utilitarian and hedonic features	User experience; perceived benefits; perceived values	Brand equity (perceived quality, loyalty, associations, trust)	Web-based survey	Mobility has a significant effect on functional & hedonic features, while mobility and utilitarian and hedonic features influence consumer experience, which affects brand fairness.
Reference [18]	Gamification mechanisms		Brand engagement, brand loyalty, and brand awareness	Case study and interviews	Marketing executives see increased engagement as one of the most vital benefits of gamification.
Reference [40]	Gamification		Consumer brand engagement and consumer benefits (functional, hedonic, social, and educational)	Interviews	Gamified packaging generates: hedonic, functional, social, and academic edges for the client that are coupled to consumer whole engagement dimensions (cognitive, emotional, and behavioural)
Reference [52]	Immersion-, achievement- and social-related gamification features	Brand engagement (cognitive, emotional and behavioural)	Brand awareness and brand loyalty	Survey	Achievement and social interplay-related gamification feature positively impact the three varieties of company engagement. Immersion-related gamification aspects are solely positively associated with social brand engagement. Brand engagement will increase company consciousness and brand loyalty.
User Engagement					
Reference [53]	Game Design Mechanisms		Engagement with online platforms (Objective metrics)	Experiment	Gamified thematic activities, graphical incentives, and discussion boards influence member retention and engagement.
Reference [54]	Game elements (points, rankings, achievement and		Engagement toward a computation system, acceptance (attitude, intention to use, and intention to	Experiment	Respondents experience added engagement and show higher behavioural intents toward the gamified system. Perceived output

	social elements)		recommend), perceived usability and perceived output quality		quality and perceived engagement influence the reception of the gamified system
Reference [55]	Game dynamics (rewards, competition, self-expression, altruism)	Competence, autonomy, relatedness and enjoyment	User engagement with a gamified information system (vigor, dedication, and absorption)	Survey	Gamification improves user engagement by mediating psychological needs, satisfaction (autonomy, competence, and relatedness), and fun.
Reference [56]	Game elements (score system, a progress bar and levels, leader board, feedback)		TAM (perceived utility, ease of use, external factors, attitude towards and demonstrated results) and user engagement with a health mobile app (focus and attention, usability perception, aesthetic aspects, supportability, originality, and involvement)	Experiment	Gamification impacts engagement positively, inspiring intrinsic motivation in the respondents.
Reference [57]	Game elements (competition and leader boards)		Engagement with an app (objective metric)	Experiment	Gamification intensifies engagement with the app
Reference [58]	Commensurate game elements (e.g., points) and incommensurate elements (e. g., likes)		Autonomy, competence, relatedness, engagement behaviour (objective metrics), intrinsic motivation, loyalty	Experiment	Users who engage with equivalent game features exhibit greater internal motivation, are more involved in physical activity, and are more devoted to the fitness app than users who do not.
Reference [59]	Perceived usefulness, perceived ease of use, convenience and enjoyment	Engagement with mobile apps	Intention to use	Survey	Perceived ease of use, perceived usefulness, and enjoyment influence engagement, leading to users' intention
Reference [13]	Gamification Design (Badges)	Disparity in professional seniority	Engagement with online platforms (objective metrics) and inequality economic of returns	Experiment	Gamification design boosts doctors' participation in online health communities.

The User Engagement Scale (UES), developed by [62], is the most popular measure for user engagement. The original UES included 31 components across six user engagement dimensions (i.e., aesthetic appeal, felt involvement, novelty, perceived usability, focused attention, and endurability). The factors included the following- Focused Involvement (FI) (if the experience is enjoyable or intriguing); Focused Attention (FA) (focused concentration, absorption, and the loss of the sense of time); Endurability "EN" (holistic response to the experience and overall success of the interaction); Novelty "NO" (interest or curiosity generated by the system throughout the buying task); Perceived Usability ("PU") and Aesthetic Appeal ("AE") are two terms for the visual look of an interface, which includes the visuals, graphics, and other items that appeal to the user's senses (affective and cognitive aspects derived from the use of the system).

Understanding individuals' communicative patterns with digital platforms (e.g., eHealth, eLearning, digital games, social media, online search) is essential in studying their effects on user behaviour [63]. With a wide variety of digital platforms (e.g., social networking sites, mobile apps, web search engines, and others), the association between gamification and user engagement has been investigated in various contexts like online platforms, mobile apps, learning management systems, human computation and others (Table I). These studies established a positive relationship between gamification and users' engagement.

III. Proposed Model and Hypotheses: Gamification and Engagement

A. Study 1

For the first part of the study, the data from the eye-tracking device was used to examine the users' visual attention towards the option to watch online content and the opportunity to play games. Eye-tracking data analysis helps to find patterns in the respondent's visual data. However, finding those patterns and analyzing the eye-tracking data require more than one visualization metric. Using multiple metrics to analyze the eye-tracking data can improve the result [64]. Fixation count (location), fixation length, and saccades (movement) are the essential pieces of eye-tracking data that form important parameters [65]. When the eye is reasonably still, it is called a fixation. Fixations determine where participants fixate their eye vision when viewing the platform. Visualization data regarding fixation duration and the count was used for the present study. Fixation Duration determines how long people spend staring at a specific spot. Each interval is a few milliseconds long. Processing is linked to increased duration, indicating complexity, interest, or engagement. Fixation counts determine which portion of the page receives more or less attention. Fixation counts are numbered in sequence to see how people

process survey pieces. Studies based on advertisements [66] included visual attention data to analyze the impact on viewers. Therefore, based on the above statements, the following hypotheses are proposed.

H1: Duration of visual attention (fixation duration) towards watching online content and gamification is the same.

H2: Visual attention, using fixation counts across watching online content, and gamification are the same.

B. Study 2

For the second part of the study, a model in Fig. 1 is proposed to understand if the viewer's attention to gamification impacts engagement with reward as a mediator. The data based on the user's visual attention on a platform displays the depth of user involvement on the platform and is an aspect of the user experience [67]. Reference [23] and [68] analyzed the visual attention data to understand user engagement. Gamification elements impact the perceived ease of use of shopping and e-banking websites [69]. Many gamified services introduce challenges as one of the prime game elements [70]. Previous research studies have shown that challenges in gamified shopping impact buying behaviour [71]. A reward gained by completing a task increases the likelihood of acting on that reward [11]. This effect has been explored in situations other than gamification and intrigues the effort necessary to overcome the challenge. Earning a reward improves the likeliness of the tip compared to receiving a prize by luck [72]. Benefits such as coupons, discounts, cashback offers, or free subscriptions motivate and engage users. A reward is considered an essential aspect of engaging customers in gamification, and thus, the following conceptual model is proposed, as given in Fig. 1.

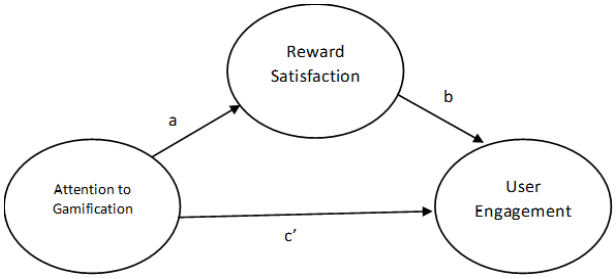

Fig. 1. Attention to Gamification and its Impact on user Engagement with Reward Satisfaction Acting as a Mediator.

1) Attention to gamification and user engagement: In their study, [73] stated that the adoption of gamification significantly leads to customer engagement. Reference [9] cited gamification as a game design scheme to achieve customer engagement and retention. Similarly, organizations use gamification to motivate and engage employees and customers [74]. Reference [48] suggested that gamification helps firms achieve customer engagement via social interactions. Reference [51] supported using gamification in marketing activities to strengthen customer engagement. Reference [75] stated that gamification's adoption boosted stakeholder engagement and is the primary driver of customer engagement. Tourist destinations employ gamified journeys to engage visitors through various elements such as interactive maps, challenges, rewards gain, plot, and other aspects [76]. Thus, to test the impact of gamification on user engagement when implemented on OTT, the following hypothesis is formulated:

H3: There is a positive relationship between Attention to Gamification on the OTT platform and User Engagement.

2) Reward satisfaction and user engagement: Gamification on a gamified platform involves dealing with obstacles or being challenged [77], and dealing with such contests takes a certain amount of engagement. Continued engagement intent is driven by reward fulfillment. An extrinsic motivator, such as a reward, is a particular outcome of an activity that seeks to influence a person toward a specific action (like playing games). A reward represents a distinct outcome from the act itself, making it an extrinsic incentive and a motivator [78]. In the gamification literature, rewards are frequently used to incentivize activity. Users feel their connections with the gamified system are valuable and meaningful if they achieve rewards via participation [11]. In our study, on playing games, users were rewarded in the form of coupons, discounts, and redemption in monetary or non-monetary conditions. As rewards act as an extrinsic motivator to improve user engagement, the following hypotheses is proposed:

H4: There is a positive relationship between Attention to Gamification (AG) and Reward Satisfaction (RS).

H5: There is a positive relationship between Reward Satisfaction (RS) and User Engagement (UE).

H6: Reward Satisfaction (RS) mediates the effects of Attention to Gamification (AG) and User Engagement (UE).

IV. Method

A. Data Collection and Procedure

The experimental study was conducted in a marketing and behavioural studies lab within the college campus premises in November and December 2021. In the experimental setup, the respondents were assigned to a gamified situation. Data was collected from the eye-tracking device and administered through a quantitative questionnaire. The respondents were instructed to browse through the OTT platform website, but nothing was informed about the gamification option. The participants were briefed about the various navigation choices available on the website and were allowed to browse at their leisure. In the lab, the respondents were made to sit in front of a laptop with a Tobii Eye tracker installed. After the calibration procedure, the participants explored the OTT platform website. The method of calibration involves estimating a subject's eyes' geometrical properties to create a fully-tailored and precise estimation of their gaze point location. The user is instructed to focus on specific points on the screen during calibration, also referred to as calibration dots.

In the gamified condition, the respondents were free to play games while browsing the website. The website hosted

numerous games, which included fun games, puzzles, logic games, candy games, train the brain games, and others. These games offered coins which were declared at the end. One currency was rewarded for every 10 points earned by players while playing the game. On earning coins, respondents could redeem those coins in the form of discounts or cash back. After the respondents had finished navigating through the website, they were instructed to complete the questionnaire.

B. Participants

As the study was conducted in the institute's laboratory and respondents were approached from within the campus; thus, convenience sampling was adopted. Initially, the total number of respondents was 60. Out of these, 8 participants failed the calibration process or had an incomplete recording. Finally, 52 participants' data was used during the analysis, as given in Table II, out of which 50 percent were females, and 50 percent were males in the age group between 20 years to 35 years. The participants were presented with a memento on task completion.

TABLE II. DEMOGRAPHICS OF RESPONDENT

Items	Types	N	%
Gender	Male	26	50
	Female	26	50
Age	20-30	47	91
	30-35	5	9
Occupation	Students	52	100
Education	Post-Graduate	45	87
	Ph. D. Scholar	7	13
Time spent on the OTT platform	Less than 1 hour	7	14
	1-2 hours	20	38
	2-3 hours	25	48
Note(s): N represents the number, % represents the percentage			

C. Measures

The study variables were measured using a five-point Likert scale (Strongly Agree to Disagree Strongly) based on previous literature (see Appendix A). Individuals' interactions with the website were measured using the visualization data from eye-tracking. User engagement was measured using the user engagement scale (UES) by adopting dimensions-aesthetic appeal (AE), focused attention (FA), perceived usability (PU), and reward satisfaction (RS). It felt involvement and novelty (FN). Lastly, the study includes four control variables: age, gender, and how much time the users spend on the OTT platform daily.

D. Attention to Watching Online Content and Gamification

Several eye-tracking statistical metrics are frequently used to translate simple eye gazing into insightful data. These metrics give a quantitative assessment and can be determined as a count, a mean, a maximum value, a minimum value, or a summation value [79]. A commonly used metric is the fixation duration and fixation count. Fixation count is used in understanding which stimuli a viewer viewed more than other stimuli content. Another measurement, fixation duration, gives a similar meaning but with a time measurement of a stationary position of the gaze point. Reference [80] measured the visual attention of the respondent using the metrics like fixation duration, fixation counts, mouse clicks, click-through rates, and page sights. In the present study, fixation duration and fixation count are used to measure visual attention toward watching online content and gamification for analysis. For the current study based on gamification, these forms of participant-action metrics can understand the experience and awareness of the viewers.

E. Apparatus and Material

An OTT platform service provider with a game-playing option was considered for the experiment. Tobii eye-tracking devices and software were used to quantify visual attention. The eye tracker used in the study is a hardware device clamped to the laptop screen. It is a technology that accurately records the participants' gaze behaviours. The output from the equipment is in the form of a video that shows where on the screen the participant has looked during the whole experiment. It presents visual data through gaze plots, heat maps, and clusters. The gaze points were filtered using Tobii I-VT (Attention) fixation filter [79]. The fixations duration and fixation count on the targeted options of the website were considered. Peer researchers visually reviewed a random set of coded data for quality faults.

V. DATA ANALYSIS AND RESULTS

The data from the study were analyzed in two stages. In the first stage, visualization data for the watch (content) and play (gamification) options in the form of fixation duration and fixation count were analyzed. In the second stage, the mediation model was tested using regression analysis.

A. First Part of the Analysis

For analysis, visualization data was collected using gaze plots and heat maps. Gaze plot data collate data for fixation duration and fixation count. The primary purpose of the gaze plot is to show the time sequence of where and when the respondent is looking at. Along with gaze plots, heatmaps are an effective tool for analyzing user behaviour on website pages, which includes user clicks, how far they scroll, and what they pay attention to or ignore. Using a heat map, researchers can identify the portion of a stimulus where participants spent the maximum time. The heatmap's color palette makes it possible to distinguish between places with longer dwell durations and shorter dwell times [81]. The heatmaps show how the total number of fixations is spread across the screen. The deeper red areas indicate which parts of the screen involved the maximum number of desires, and the green areas show the least attended function.

Fig. 2 and Fig. 3 represent aggregated heat map data images with the red color denoting maximum concentration and green indicating the least amount. At a glance, attention is more dispersed during the website navigation task, more concentrated on the play option (Fig. 2) and the watch option (Fig. 3) area on the website. Thus, stating that the visual attention towards both options was almost similar. The initial part of the quantitative finding answers the first part of the

research question- whether the viewer's attention toward the opportunity to watch online content and the gamification option is the same. As the data under consideration (visualization data from gaze plots) has non-normal distribution, a non-parametric Mann–Whitney test was performed. The proposed hypotheses H1 and H2 were tested using the Mann-Whitney U test. This test's dependent variable is continuous or ordinal and compares variances between two independent groups.

Fig. 2. A Heat Map with Maximum Concentration on the Play Option on the OTT Platform. Source: Tobii Eye Tracker (Visualisation Data).

Fig. 3. A Heat Map with Maximum Concentration on the Watch Option on the OTT Platform. Source: Tobii Eye Tracker (Visualisation Data).

From Table III and Table IV, N=52, the mean rank for the option to play is more than the watch option, with U=1053.5 and p=0.052(the significance level, p<0.05) for the fixation duration and U=1056.5 and p=0.54(the significance level, p<0.05) for the fixation count, suggests that the difference between the fixation data for watch option and play option is insignificant. This states that both options' visualization data (fixation data) are not significantly different. Thus, hypotheses H1 and H2 are accepted.

TABLE III. RANKS STATISTICS FOR FIXATION DURATION (FD) AND FIXATION COUNT (FC)

		Fixation Duration (FD)		Fixation Count (FC)	
Tabs	**N**	**Mean Rank**	**Sum of Ranks**	**Mean Rank**	**Sum of Ranks**
Watch	52	46.76	2431.50	46.82	2434.50
Gamification	52	58.24	3028.50	58.18	3025.50
Total	104				

TABLE IV. MANN-WHITNEY TEST STATISTICS FOR FIXATION DURATION (FD) AND FIXATION COUNT (FC)

	FD	**FC**
Mann-Whitney U	1053.50	1056.50
Wilcoxon W	2431.50	2434.50
Z	-1.941	-1.930
Asymp. Sig. (2-tailed)	.052	.054
a. Grouping Variable: Tabs *Note: p<0.05*		

OTT platforms are primarily considered for viewing online content in the forms of web series, movies, and others. The above results inferred that the viewers paid equal attention to the watch option and the option to play games while browsing the website. Thus, a potential strategy for OTT platform developers to work on adopting gamification to enhance user engagement can be considered.

B. Second Part of the Analysis

In the second part of the study, the proposed hypotheses based on the mediation model were tested using regression analysis presented by [82]. The research was conducted using SPSS 22.0 software to test the mediating effect. It was examined that Reward Satisfaction (RS) acted as a mediator between attention to gamification (AG) and user engagement (UE). AG was measured using the fixation duration data from the eye-tracker. For RS and UE, data was collected using a questionnaire that had 16 items based on the User Engagement Scale (UES) [62].

1) Hypothesis testing: Previous research on gamification has incorporated regression analysis using structural equation modeling (SEM) [69]. The present study attempted to predict user engagement (dependent variable) based on attention towards gamification (independent variable) with reward satisfaction as a mediator. As recommended by [70], multiple regression analysis was used to test the model. Multiple regression analysis is an extended form of linear regression analysis. It predicts the value of a variable based on the value of two or more other variables. It determines the overall fit of the model and the contribution of each of the predictors to the total variance.

TABLE V. REGRESSION ANALYSIS

Hypo-thesis	**R**	**R^2**	**Adj.R^2**	**F**	**β**	**P**	**Durbin-Watson**	**VIF**
AG-RS	0.401	0.161	0.152	24.1	0.382	0.000	1.928	1.000
AG-UE	0.251	0.063	0.055	9.9	0.261	0.005	1.906	1.000
RS-UE	0.334	0.112	0.102	15.3	0.371	0.000	1.813	1.000

The regression analysis states that all the hypotheses have been supported as per Table V. Durbin-Watson statistics is between 1.5 and 2.5; hence there is no autocorrelation [83]. By analyzing the path connecting AG to RS (H4), it can be stated that AG substantially impacts RS for the viewers. It explains

nearly 15.2% of the total RS variance. The β coefficient of this path is 0.382 and was found to be statistically significant at p<0.000.

The mediating regression analysis output is presented in Table VI. The statistics propose that AG under the mediating effect of RS (H6) is an essential predictor of UE. Sobel statistics suggested by [84], with a p-value < 0.05, was used to signify the mediating regression. The study revealed that the direct effect (c'=0.15) of AG on UE is insignificant, whereas the indirect effect (a x b= 0.124, p<0.05) is significant, indicating that RS plays a mediating role between AG and UE. Complete mediation occurs in a condition where the independent variable has no effect when the mediator is controlled [82]. AG accounted for 5% variability in UE. However, when RS was introduced as a mediating variable between AG and UE, the variability increased to 12%, which is more than double compared to the AG- UE model. Thus, the model improved with the mediating effect of RS.

Our study highlights that gamification adoption improves user engagement with rewards as one of the key contributors. Therefore, the developers need to pay attention to innovating and improving the adoption of gamification across OTT platforms. This seems logical because when the user is provided with an option to play and earn, they feel motivated and engage on the platform. Although the application of gamification on the OTT service providers' platform is in its primary stage, our study highlights a positive future. Considering that the satisfaction of the reward is a mediator, it will be a practical step to improvise the quality of the reward to improve user engagement. This improvement seems reasonable as the users will have options to earn good quality rewards while playing short and easy games on the OTT platform [11], [85]. It will enhance their interest in playing and watching online content.

TABLE VI. MEDIATING REGRESSION ANALYSIS

IV	**MV**	**DV**	**Effects of IV on MV (a)**	**Effects of MV on DV (b)**	**Direct effect (c′)**	Indirect effect (a × b)	Total effects c'+(a × b)	Mediation	Sobel p-value
AG	RS	UE	0.382 (0.087)*	0.371 (0.092)*	0.15 (0.09)	0.124	0.261 (0.091)	Complete mediation	0.002
Notes: IV, independent variable; MV, mediating variable; DV, dependent variable; AG, Attention to gamification; RS, reward satisfaction; UE, User Engagement. *$p<0.05$									

VI. DISCUSSION AND IMPLICATIONS OF RESEARCH

Many companies are driving their focus toward implementation gamification in their business processes to improve employee-customer engagement. Businesses employ game features to increase repeat purchasing behaviour. This study aims to understand if the adoption of gamification with reward enhances user engagement. While previous studies [69], [86] have attempted to link gamification to customer engagement, the current study mediation process was used to understand how rewards motivate viewers on the OTT platform. This part of the paper suggests theoretical and practical applications of the study conducted, thereby adding to the body of knowledge by advancing the theoretical and practical discussion related to gamification adoption and behavioural studies.

This study makes several significant theoretical contributions. Firstly, the study is one of its kind to demonstrate the relation between gamification, reward, and user engagement. An experiment was designed to test how gamification and rewards influenced viewer engagement. Earlier studies have used the gamification concept across platforms like tourism websites, mobile apps, crowdfunding platforms, and others. In contrast, the current study considered an OTT platform to test the impact of gamification on viewer engagement. Since its inception, users have been using OTT platforms to watch online content in web series, movies, and others. This study brings a new perspective toward understanding the role of gamification on the OTT platform, which is in its booming stage. Previous studies concerning OTT platforms have focused on understanding the users' adoption behaviour. With the adoption of gamification on the OTT platform, OTT service providers are reshaping their basic structures of providing online content. Thus, this study provides insight into the practicality of the OTT platform's new approach, like gamification. A survey by [87] stated that reward was a mediator in the relationship between gamification and motivation (hedonic and utilitarian). Similarly, the current study successfully analyses the mediating role of rewards in the relationship between gamification and user engagement. This study is a first-hand approach to conducting eye-tracking analysis on the OTT platform, thereby adding to the literature on the methods used across OTT platforms.

In addition to the theoretical contributions, several managerial implications derive from the study's empirical results. Integrating gamification components into marketing, social media, community, and other digital brand experiences is a potent user engagement tactic for increasing engagement. Though not a one-size-fits-all solution, gamification can assist in increasing brand and content awareness in the OTT video market in various ways when used carefully and tailored to the content [88]. Earlier research demonstrated that gamification positively impacts buying behaviour and engagement [54], [61]. The results from the present study support the inclusion of gamification for increasing engagement. The findings state several practical suggestions to help OTT platform developers and marketers make better decisions regarding the implementation of gamification. With gamification getting a similar amount of visual attention compared to watching content options, marketers and developers must work hard towards the appropriate implementation of gamification to increase user engagement on OTT platforms.

Game components like rewards (received upon playing games) make it desirable for consumers to interact with

gamification options and influence user engagement. Game designers can think about including challenges and real-time feedback in their games so that users can keep track of their improvement and outcomes. Players can receive points for their efforts and, based on the points earned, progress to advanced levels with more challenging activities, giving them the impression that their abilities are growing and that spending time on such platforms is valuable. Gamification on the OTT platform is in the nascent stage, so game developers should pay attention to the game's aesthetic appeal as it is the first thing the user views. Games that are visually attractive with high-quality graphics have a high chance of getting spotted.

The present study used an eye-tracking device to map the OTT viewers' visual attention and platform activities. Eye-tracking (Eye movement analysis) is a valuable source for investigating the visual attention process (which is directed by the sub-conscious behaviour) while involved in an activity. It displays how visual attention is allocated to the objects (e.g., words and graphic portions), how long, and in what direction [68]. The eye-tracking approach has been used widely in library science and information search [89]. This study has used eye-tracking software to analyze user engagement through visual attention data towards gamification on the OTT platform and is one of a kind.

VII. Limitations and Future Research

The study provides possibilities for further research. The study adopted a unique approach to understanding the impact of gamification on OTT with a preference for user engagement. Although this study makes several contributions, it also has several limitations. The information was gathered all at once; longitudinal data could be used in future studies to determine the long-term impact of gamification. Second, the data was collected via a single OTT platform; thus, future studies might be conducted on different OTT. Thirdly, future research could carry out a comparative study between the two or more OTT platforms with or without gamification.

In the current study, the sample size was limited to only 52. The respondent was college campus students with an average age between 20 to 30 years; future research could use an improved sample size and age range above 35 years. With respondents from the Millennials category, the interest, involvement, and engagement could give mixed results. The present study was purely quantitative; in the future, mixed-method or qualitative research might generate different insights. Also, the future progress in this study could be to understand the continued usage intention [90] driven by user engagement towards the OTT platform. With the OTT content becoming part of everyday life, it has become a topic of conversation among viewers. Finding, watching, and discussing content has become a social experience amongst online communities. OTT providers must comprehend how potential viewers find specific and exciting content and apply this knowledge to their marketing strategies, generating a requirement for future research to explore social interaction and engagement on the OTT platform.

VIII. Conclusion

The result of this study showcases how gamification affects users while watching online content on the OTT platform. With the intrinsically motivating aspect of the gamified services [91], usage of gamification on the OTT platforms could increase due to its appealing approach towards the users. The present study does not engage with the general inclination to use the app; it only shows how the implementation of gamification can improve the viewer's engagement on the OTT platform and can be used as an efficient marketing tool for promoting the OTT apps.

References

[1] "Over The Top (OTT) Services Market," 2021. [Online]. Available: https://www.fortunebusinessinsights.com/industry-reports/over-the-top-services-market-100506.

[2] S.-H. Yoon, H.-W. Kim, and A. Kankanhalli, "What makes people watch online TV clips? An empirical investigation of survey data and viewing logs," Int. J. Inf. Manage., vol. 59, p. 102329, Aug. 2021, doi: 10.1016/j.ijinfomgt.2021.102329.

[3] G. Gupta and K. Singharia, "Consumption of OTT Media Streaming in COVID-19 Lockdown: Insights from PLS Analysis," Vis. J. Bus. Perspect., vol. 25, no. 1, pp. 36–46, Mar. 2021, doi: 10.1177/0972262921989118.

[4] T. YS, "ZEE5, India's largest OTT platform reimagines Hyper-personalisation for consumers," ZEE5 View Brand Publisher, 2021.

[5] A. Bozkurt and G. Durak, "A Systematic Review of Gamification Research," Int. J. Game-Based Learn., vol. 8, no. 3, pp. 15–33, Jul. 2018, doi: 10.4018/IJGBL.2018070102.

[6] A. Domínguez, J. Saenz-de-Navarrete, L. De-Marcos, L. Fernández-Sanz, C. Pagés, and J.-J. Martínez-Herráiz, "Gamifying learning experiences: Practical implications and outcomes," Comput. Educ., vol. 63, pp. 380–392, Apr. 2013, doi: 10.1016/j.compedu.2012.12.020.

[7] K. Huotari and J. Hamari, "A definition for gamification: anchoring gamification in the service marketing literature," Electron. Mark., vol. 27, no. 1, pp. 21–31, 2017, doi: 10.1007/s12525-015-0212-z.

[8] J. Koivisto and J. Hamari, "The rise of motivational information systems: A review of gamification research," Int. J. Inf. Manage., vol. 45, pp. 191–210, Apr. 2019, doi: 10.1016/j.ijinfomgt.2018.10.013.

[9] Y. Yang, Y. Asaad, and Y. Dwivedi, "Examining the impact of gamification on intention of engagement and brand attitude in the marketing context," Comput. Human Behav., vol. 73, pp. 459–469, 2017, doi: 10.1016/j.chb.2017.03.066.

[10] C. F. Hofacker, K. de Ruyter, N. H. Lurie, P. Manchanda, and J. Donaldson, "Gamification and Mobile Marketing Effectiveness," J. Interact. Mark., vol. 34, pp. 25–36, May 2016, doi: 10.1016/j.intmar.2016.03.001.

[11] J. Högberg, P. Shams, and E. Wästlund, "Gamified in-store mobile marketing: The mixed effect of gamified point-of-purchase advertising," J. Retail. Consum. Serv., vol. 50, no. July 2018, pp. 298–304, 2019, doi: 10.1016/j.jretconser.2018.07.004.

[12] D. M.-H. Wen, D. J.-W. Chang, Y.-T. Lin, C.-W. Liang, and S.-Y. Yang, "Gamification Design for Increasing Customer Purchase Intention in a Mobile Marketing Campaign App," 2014, pp. 440–448.

[13] J. Liu, X. Zhang, F. Meng, and K. Lai, "Deploying gamification to engage physicians in an online health community: An operational paradox," Int. J. Prod. Econ., vol. 228, p. 107847, Oct. 2020, doi: 10.1016/j.ijpe.2020.107847.

[14] S. Nagaraj, S. Singh, and V. R. Yasa, "Factors affecting consumers' willingness to subscribe to over-the-top (OTT) video streaming services in India," Technol. Soc., vol. 65, p. 101534, May 2021, doi: 10.1016/j.techsoc.2021.101534.

[15] M. L. Wayne and D. Castro, "SVOD Global Expansion in Cross-National Comparative Perspective: Netflix in Israel and Spain," Telev. New Media, vol. 22, no. 8, pp. 896–913, Dec. 2021, doi: 10.1177/1527476420926496.

[16] S. Deterding, “Situated motivational affordances of game elements: A conceptual model,” CHI 2011 Work. “Gamification,” no. July, 2011, [Online]. Available: http://gamification-research.org/chi2011/papers.

[17] G. Barata, S. Gama, J. Jorge, and D. Gonçalves, “Gamification for smarter learning: tales from the trenches,” Smart Learn. Environ., vol. 2, no. 1, p. 10, Dec. 2015, doi: 10.1186/s40561-015-0017-8.

[18] G. Lucassen and S. Jansen, “Gamification in Consumer Marketing - Future or Fallacy?,” Procedia - Soc. Behav. Sci., vol. 148, pp. 194–202, Aug. 2014, doi: 10.1016/j.sbspro.2014.07.034.

[19] T. Leclercq, W. Hammedi, and I. Poncin, “The Boundaries of Gamification for Engaging Customers: Effects of Losing a Contest in Online Co-creation Communities,” J. Interact. Mark., vol. 44, pp. 82–101, Nov. 2018, doi: 10.1016/j.intmar.2018.04.004.

[20] R. Pace and A. Dipace, “Game-Based Learning and Lifelong Learning for Tourist Operators,” in Cultural Tourism in Digital Era, Springer International Publishing, 2015, pp. 185–199.

[21] D. Pacauskas, R. Rajala, M. Westerlund, and M. Mäntymäki, “Harnessing user innovation for social media marketing: Case study of a crowdsourced hamburger,” Int. J. Inf. Manage., vol. 43, pp. 319–327, Dec. 2018, doi: 10.1016/j.ijinfomgt.2018.08.012.

[22] J. Müller-Stewens, T. Schlager, G. Häubl, and A. Herrmann, “Gamified Information Presentation and Consumer Adoption of Product Innovations,” J. Mark., vol. 81, no. 2, pp. 8–24, Mar. 2017, doi: 10.1509/jm.15.0396.

[23] F. Espigares-Jurado, F. Muñoz-Leiva, M. B. Correia, C. M. R. Sousa, C. M. Q. Ramos, and L. Faísca, “Visual attention to the main image of a hotel website based on its position, type of navigation and belonging to Millennial generation: An eye tracking study,” J. Retail. Consum. Serv., vol. 52, p. 101906, Jan. 2020, doi: 10.1016/j.jretconser.2019.101906.

[24] T. Harwood and T. Garry, “An investigation into gamification as a customer engagement experience environment,” J. Serv. Mark., vol. 29, no. 6/7, pp. 533–546, Sep. 2015, doi: 10.1108/JSM-01-2015-0045.

[25] H. L. O’Brien and E. G. Toms, “What is user engagement? A conceptual framework for defining user engagement with technology,” J. Am. Soc. Inf. Sci. Technol., vol. 59, no. 6, pp. 938–955, Apr. 2008, doi: 10.1002/asi.20801.

[26] R. S. Alsawaier, “The effect of gamification on motivation and engagement,” Int. J. Inf. Learn. Technol., vol. 35, no. 1, pp. 56–79, Jan. 2018, doi: 10.1108/IJILT-02-2017-0009.

[27] J. Bowden, “Customer Engagement: A Framework for Assessing Customer-Brand Relationships: The Case of the Restaurant Industry,” J. Hosp. Mark. Manag., vol. 18, no. 6, pp. 574–596, Jul. 2009, doi: 10.1080/19368620903024983.

[28] J. L.-H. Bowden, “The Process of Customer Engagement: A Conceptual Framework,” J. Mark. Theory Pract., vol. 17, no. 1, pp. 63–74, Jan. 2009, doi: 10.2753/MTP1069-6679170105.

[29] L. Hollebeek, “Exploring customer brand engagement: definition and themes,” J. Strateg. Mark., vol. 19, no. 7, pp. 555–573, Dec. 2011, doi: 10.1080/0965254X.2011.599493.

[30] R. Eppmann, M. Bekk, K. Klein, and F. Völckner, “Understanding the (negative and positive) effects of gamification for companies,” Mark. Sci. Inst. Work. Pap. Ser., vol. 20–14, pp. 200–212, 2020, [Online]. Available: file:///C:/Users/marvi/Downloads/study_id27102_cash-and-carry-grosshandel-in-deutschland-statista-dossier.pdf%0Ahttps://de.statista.com/statistik/studie/id/25139/dokument/lebensmittelhandel-in-oesterreich-statista-dossier/%0Ahttp://www.lebensmittelzeitung.

[31] C. S. L. Tan, “Gamifying OTT: a study on consumer attitudes toward game elements and OTT media service provider brands in gamification,” Young Consum., vol. 22, no. 3, pp. 328–347, Jul. 2021, doi: 10.1108/YC-11-2020-1245.

[32] B. Hutchins, B. Li, and D. Rowe, “Over-the-top sport: live streaming services, changing coverage rights markets and the growth of media sport portals,” Media, Cult. Soc., vol. 41, no. 7, pp. 975–994, Oct. 2019, doi: 10.1177/0163443719857623.

[33] K. T. Kwak, C. J. Oh, and S. W. Lee, “Who uses paid over-the-top services and why? Cross-national comparisons of consumer demographics and values,” Telecomm. Policy, vol. 45, no. 7, p. 102168, Aug. 2021, doi: 10.1016/j.telpol.2021.102168.

[34] R. L. Oliver, “A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions,” J. Mark. Res., vol. 17, no. 4, pp. 460–469, Nov. 1980, doi: 10.1177/002224378001700405.

[35] F. D. Davis, “Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology,” MIS Q., vol. 13, no. 3, p. 319, Sep. 1989, doi: 10.2307/249008.

[36] Van Der Heijden, “User Acceptance of Hedonic Information Systems,” MIS Q., vol. 28, no. 4, p. 695, 2004, doi: 10.2307/25148660.

[37] H. Choi and S. Kim, “국내외 Ott 서비스의 사용자 경험 연구,” vol. 18, no. 4, pp. 425–431, 2020.

[38] G. Sahu, L. Gaur, and G. Singh, “Applying niche and gratification theory approach to examine the users’ indulgence towards over-the-top platforms and conventional TV,” Telemat. Informatics, vol. 65, p. 101713, Dec. 2021, doi: 10.1016/j.tele.2021.101713.

[39] S. Kim, H. Baek, and D. H. Kim, “OTT and live streaming services: Past, present, and future,” Telecomm. Policy, vol. 45, no. 9, p. 102244, Oct. 2021, doi: 10.1016/j.telpol.2021.102244.

[40] H. Syrjälä, H. Kauppinen-Räisänen, H. T. Luomala, T. N. Joelsson, K. Könnölä, and T. Mäkilä, “Gamified package: Consumer insights into multidimensional brand engagement,” J. Bus. Res., vol. 119, no. December 2019, pp. 423–434, 2020, doi: 10.1016/j.jbusres.2019.11.089.

[41] A. Pansari and V. Kumar, “Customer engagement: the construct, antecedents, and consequences,” J. Acad. Mark. Sci., vol. 45, no. 3, pp. 294–311, May 2017, doi: 10.1007/s11747-016-0485-6.

[42] I. Bouchrika, N. Harrati, V. Wanick, and G. Wills, “Exploring the impact of gamification on student engagement and involvement with e-learning systems,” Interact. Learn. Environ., vol. 29, no. 8, pp. 1244–1257, Nov. 2021, doi: 10.1080/10494820.2019.1623267.

[43] K. Robson, K. Plangger, J. H. Kietzmann, I. McCarthy, and L. Pitt, “Game on: Engaging customers and employees through gamification,” Bus. Horiz., vol. 59, no. 1, pp. 29–36, Jan. 2016, doi: 10.1016/j.bushor.2015.08.002.

[44] W. Hammedi, T. Leclerq, and A. C. R. Van Riel, “The use of gamification mechanics to increase employee and user engagement in participative healthcare services,” J. Serv. Manag., vol. 28, no. 4, pp. 640–661, Aug. 2017, doi: 10.1108/JOSM-04-2016-0116.

[45] Y. Yang, Y. Asaad, and Y. Dwivedi, “Examining the impact of gamification on intention of engagement and brand attitude in the marketing context,” Comput. Human Behav., vol. 73, pp. 459–469, Aug. 2017, doi: 10.1016/j.chb.2017.03.066.

[46] F. Xu, D. Buhalis, and J. Weber, “Serious games and the gamification of tourism,” Tour. Manag., vol. 60, pp. 244–256, Jun. 2017, doi: 10.1016/j.tourman.2016.11.020.

[47] S. Jang, P. J. Kitchen, and J. Kim, “The effects of gamified customer benefits and characteristics on behavioral engagement and purchase: Evidence from mobile exercise application uses,” J. Bus. Res., vol. 92, pp. 250–259, Nov. 2018, doi: 10.1016/j.jbusres.2018.07.056.

[48] A. B. Eisingerich, A. Marchand, M. P. Fritze, and L. Dong, “Hook vs. hope: How to enhance customer engagement through gamification,” Int. J. Res. Mark., vol. 36, no. 2, pp. 200–215, Jun. 2019, doi: 10.1016/j.ijresmar.2019.02.003.

[49] A. Berger, T. Schlager, D. E. Sprott, and A. Herrmann, “Gamified interactions: whether, when, and how games facilitate self–brand connections,” J. Acad. Mark. Sci., vol. 46, no. 4, pp. 652–673, Jul. 2018, doi: 10.1007/s11747-017-0530-0.

[50] C.-L. Hsu and M.-C. Chen, “How does gamification improve user experience? An empirical investigation on the antecedences and consequences of user experience and its mediating role,” Technol. Forecast. Soc. Change, vol. 132, pp. 118–129, Jul. 2018, doi: 10.1016/j.techfore.2018.01.023.

[51] C.-L. Hsu and M.-C. Chen, “How gamification marketing activities motivate desirable consumer behaviors: Focusing on the role of brand love,” Comput. Human Behav., vol. 88, pp. 121–133, Nov. 2018, doi: 10.1016/j.chb.2018.06.037.

[52] N. Xi and J. Hamari, “Does gamification affect brand engagement and equity? A study in online brand communities,” J. Bus. Res., vol. 109, pp. 449–460, Mar. 2020, doi: 10.1016/j.jbusres.2019.11.058.

[53] M.-S. Kuo and T.-Y. Chuang, "How gamification motivates visits and engagement for online academic dissemination – An empirical study," Comput. Human Behav., vol. 55, pp. 16–27, Feb. 2016, doi: 10.1016/j.chb.2015.08.025.

[54] X. Wang, D. H.-L. Goh, E.-P. Lim, A. W. L. Vu, and A. Y. K. Chua, "Examining the Effectiveness of Gamification in Human Computation," Int. J. Human–Computer Interact., vol. 33, no. 10, pp. 813–821, Oct. 2017, doi: 10.1080/10447318.2017.1287458.

[55] A. Suh, C. Wagner, and L. Liu, "Enhancing User Engagement through Gamification," J. Comput. Inf. Syst., vol. 58, no. 3, pp. 204–213, Jul. 2018, doi: 10.1080/08874417.2016.1229143.

[56] N. P. Cechetti, E. A. Bellei, D. Biduski, J. P. M. Rodriguez, M. K. Roman, and A. C. B. De Marchi, "Developing and implementing a gamification method to improve user engagement: A case study with an m-Health application for hypertension monitoring," Telemat. Informatics, vol. 41, pp. 126–138, Aug. 2019, doi: 10.1016/j.tele.2019.04.007.

[57] M. Featherstone and J. Habgood, "UniCraft: Exploring the impact of asynchronous multiplayer game elements in gamification," Int. J. Hum. Comput. Stud., vol. 127, pp. 150–168, Jul. 2019, doi: 10.1016/j.ijhcs.2018.05.006.

[58] W. Feng, R. Tu, and P. Hsieh, "Can gamification increases consumers' engagement in fitness apps? The moderating role of commensurability of the game elements," J. Retail. Consum. Serv., vol. 57, p. 102229, Nov. 2020, doi: 10.1016/j.jretconser.2020.102229.

[59] S. Kamboj, S. Rana, and V. A. Drave, "Factors Driving Consumer Engagement and Intentions with Gamification of Mobile Apps," J. Electron. Commer. Organ., vol. 18, no. 2, pp. 17–35, Apr. 2020, doi: 10.4018/JECO.2020040102.

[60] N. Xi and J. Hamari, "Does gamification satisfy needs? A study on the relationship between gamification features and intrinsic need satisfaction," Int. J. Inf. Manage., vol. 46, no. November 2018, pp. 210–221, 2019, doi: 10.1016/j.ijinfomgt.2018.12.002.

[61] M. Silic, G. Marzi, A. Caputo, and P. M. Bal, "The effects of a gamified human resource management system on job satisfaction and engagement," Hum. Resour. Manag. J., vol. 30, no. 2, pp. 260–277, Apr. 2020, doi: 10.1111/1748-8583.12272.

[62] H. L. O'Brien and E. G. Toms, "The development and evaluation of a survey to measure user engagement," J. Am. Soc. Inf. Sci. Technol., vol. 61, no. 1, pp. 50–69, Jan. 2010, doi: 10.1002/asi.21229.

[63] H. L. O'Brien, P. Cairns, and M. Hall, "A practical approach to measuring user engagement with the refined user engagement scale (UES) and new UES short form," Int. J. Hum. Comput. Stud., vol. 112, no. July 2017, pp. 28–39, 2018, doi: 10.1016/j.ijhcs.2018.01.004.

[64] T. Blascheck, K. Kurzhals, M. Raschke, M. Burch, D. Weiskopf, and T. Ertl, "Visualization of Eye Tracking Data: A Taxonomy and Survey," Comput. Graph. Forum, vol. 36, no. 8, pp. 260–284, Dec. 2017, doi: 10.1111/cgf.13079.

[65] A. Schall and J. Romano Bergstrom, "The Future of Eye Tracking and User Experience," in Eye Tracking in User Experience Design, Elsevier, 2014, pp. 351–360.

[66] B. W. Wojdynski and H. Bang, "Distraction effects of contextual advertising on online news processing: an eye-tracking study," Behav. Inf. Technol., vol. 35, no. 8, pp. 654–664, Aug. 2016, doi: 10.1080/0144929X.2016.1177115.

[67] P. C. Heather O'Brien, Why engagement matters: Cross-disciplinary perspectives of user engagement in digital media. Springer International Publishing, 2016.

[68] T.-Y. Kim and D.-H. Shin, "User Experience(UX) of Facebook: Focusing on Users' Eye Movement Pattern and Advertising Contents," J. Korea Contents Assoc., vol. 14, no. 7, pp. 45–57, Jul. 2014, doi: 10.5392/JKCA.2014.14.07.045.

[69] A. García-Jurado, M. Torres-Jiménez, A. L. Leal-Rodríguez, and P. Castro-González, "Does gamification engage users in online shopping?," Electron. Commer. Res. Appl., vol. 48, p. 101076, Jul. 2021, doi: 10.1016/j.elerap.2021.101076.

[70] J. Hamari, J. Koivisto, and H. Sarsa, "Does Gamification Work? -- A Literature Review of Empirical Studies on Gamification," in 2014 47th Hawaii International Conference on System Sciences, Jan. 2014, pp. 3025–3034, doi: 10.1109/HICSS.2014.377.

[71] J. Högberg, J. Hamari, and E. Wästlund, "Gameful Experience Questionnaire (GAMEFULQUEST): an instrument for measuring the perceived gamefulness of system use," User Model. User-adapt. Interact., vol. 29, no. 3, pp. 619–660, Jul. 2019, doi: 10.1007/s11257-019-09223-w.

[72] G. Loewenstein and S. Issacharoff, "Source dependence in the valuation of objects," J. Behav. Decis. Mak., vol. 7, no. 3, pp. 157–168, Sep. 1994, doi: 10.1002/bdm.3960070302.

[73] L. F. Rodrigues, A. Oliveira, and H. Rodrigues, "Main gamification concepts: A systematic mapping study," Heliyon, vol. 5, no. 7, p. e01993, Jul. 2019, doi: 10.1016/j.heliyon.2019.e01993.

[74] J. Hwang and L. Choi, "Having fun while receiving rewards?: Exploration of gamification in loyalty programs for consumer loyalty," J. Bus. Res., vol. 106, pp. 365–376, Jan. 2020, doi: 10.1016/j.jbusres.2019.01.031.

[75] E. Marcucci, V. Gatta, and M. Le Pira, "Gamification design to foster stakeholder engagement and behavior change: An application to urban freight transport," Transp. Res. Part A Policy Pract., vol. 118, pp. 119–132, Dec. 2018, doi: 10.1016/j.tra.2018.08.028.

[76] Y. (Sandy) Shen, H. C. Choi, M. Joppe, and S. Yi, "What motivates visitors to participate in a gamified trip? A player typology using Q methodology," Tour. Manag., vol. 78, p. 104074, Jun. 2020, doi: 10.1016/j.tourman.2019.104074.

[77] C. Jennett et al., "Measuring and defining the experience of immersion in games," Int. J. Hum. Comput. Stud., vol. 66, no. 9, pp. 641–661, Sep. 2008, doi: 10.1016/j.ijhcs.2008.04.004.

[78] R. M. Ryan and E. L. Deci, "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions," Contemp. Educ. Psychol., vol. 25, no. 1, pp. 54–67, Jan. 2000, doi: 10.1006/ceps.1999.1020.

[79] A. Olsen, "The Tobii I-VT Fixation Filter," 2012. [Online]. Available: https://www.tobiipro.com/siteassets/tobii-pro/learn-and-support/analyze/how-do-we-classify-eye-movements/tobii-pro-i-vt-fixation-filter.pdf.

[80] R. M. Martey et al., "Measuring Game Engagement," Simul. Gaming, vol. 45, no. 4–5, pp. 528–547, Aug. 2014, doi: 10.1177/1046878114553575.

[81] A. T. Duchowski, Eye Tracking Methodology. Cham: Springer International Publishing, 2017.

[82] R. M. Baron and D. A. Kenny, "The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations.," J. Pers. Soc. Psychol., vol. 51, no. 6, pp. 1173–1182, 1986, doi: 10.1037/0022-3514.51.6.1173.

[83] J. F. Hair Jr., L. M. Matthews, R. L. Matthews, and M. Sarstedt, "PLS-SEM or CB-SEM: updated guidelines on which method to use," Int. J. Multivar. Data Anal., vol. 1, no. 2, p. 107, 2017, doi: 10.1504/ijmda.2017.10008574.

[84] M. E. Sobel, "Asymptotic Confidence Intervals for Indirect Effects in Structural Equation Models," Sociol. Methodol., vol. 13, p. 290, 1982, doi: 10.2307/270723.

[85] P. Bitrián, I. Buil, and S. Catalán, "Enhancing user engagement: The role of gamification in mobile apps," J. Bus. Res., vol. 132, no. April, pp. 170–185, 2021, doi: 10.1016/j.jbusres.2021.04.028.

[86] S. Shi, W. K. S. Leung, and F. Munelli, "Gamification in OTA platforms: A mixed-methods research involving online shopping carnival," Tour. Manag., vol. 88, p. 104426, Feb. 2022, doi: 10.1016/j.tourman.2021.104426.

[87] A. Behl and V. Pereira, "What's behind a scratch card? Designing a mobile application using gamification to study customer loyalty: An experimental approach," Australas. J. Inf. Syst., vol. 25, Nov. 2021, doi: 10.3127/ajis.v25i0.3203.

[88] M. Khurana, "MOBILE ECOSYSTEM REPORT 2020," 2020. [Online]. Available: https://d2ksis2z2ke2jq.cloudfront.net/uploads/ 2020/02/mmer_2020_-_report.pdf.

[89] J. Walhout, P. Oomen, H. Jarodzka, and S. Brand-Gruwel, "Effects of task complexity on online search behavior of adolescents," J. Assoc. Inf. Sci. Technol., vol. 68, no. 6, pp. 1449–1461, Jun. 2017, doi: 10.1002/asi.23782.

[90] R. Pereira and C. Tam, "Impact of enjoyment on the usage continuance intention of video-on-demand services," Inf. Manag., vol. 58, no. 7, p. 103501, Nov. 2021, doi: 10.1016/j.im.2021.103501.

[91] R. S. Alsawaier, "Research trends in the study of gamification," Int. J. Inf. Learn. Technol., vol. 36, no. 5, pp. 373–380, 2019, doi: 10.1108/IJILT-12-2017-0119.

[92] H. L. O'Brien, P. Cairns, and M. Hall, "A practical approach to measuring user engagement with the refined user engagement scale (UES) and new UES short form," Int. J. Hum. Comput. Stud., vol. 112, pp. 28–39, Apr. 2018, doi: 10.1016/j.ijhcs.2018.01.004.

APPENDIX- A

Construct and source		**Items**
User Engagement [92]	AE.1	The games on the OTT platform were attractive
	AE.2	The components of the game on the OTT platform were aesthetically appealing.
	AE.3	I liked the graphics and images of the game on the OTT platform.
	FA.1	While playing the game on the OTT platform, I lost myself.
	FA.2	I was so involved in playing the game on OTT that I lost track of time.
	FA.3	I blocked out things around me when I was playing the game on the OTT platform.
	PU.1	I felt frustrated while using the OTT platform for playing games. (R)
	PU.2	I found the game on the OTT platform confusing to use. (R)
	PU.3	I felt annoyed while playing the game on the OTT platform. (R)
	NO1	I continued to play games on the OTT platform out of curiosity.
	FI2	I felt involved in the gaming task.
	FI3	This gaming experience on the OTT platform was fun.
	RW.1	Using the OTT platform to play games was worthwhile.
	RW.3	The experience of playing a game on the OTT platform did not work out the way I had planned.
	RW.4	My experience while playing games on the OTT platform was rewarding.
	RW.5	I recommend playing a game on the OTT platform to my family and friends.