

The Impact of Gamification on Cognitive Brand Engagement in E-Commerce Context

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Abstract

Gamification has turned into a popular strategy among various sectors and marketing is one of them. Many corporations consider gamification as a most effective marketing strategy to increase user's engagement, awareness and loyalty towards brand. Though, there is lack of empirical studies supporting above mentioned beliefs. The aim of this research is to explore the distinct gaming elements and to study the effect of gaming elements, also known as gamification, on cognitive aspect of brand engagement in context of e-commerce. This study tests how gamification is associated with the cognitive brand engagement by using descriptive cross sectional design on youngsters of Haryana State. Factor analysis and multiple regressions have been used as statistical tools for this study. Gamification is found positively associated with cognitive brand engagement and brand management is effectively managed by gamification as an effective marketing strategy. The paper will be of value to those interested in applying gamification to engage and motivate individuals. This study is suitable for academics and as well as for practitioners.

Keywords: Game Design, Gamification, Cognitive brand engagement, E-Commerce

Introduction

E-commerce has transformed rapidly in India due to easy internet access and smart phone penetration and digital push by government of India. The shift towards online shopping i.e. from conventional shopping to unconventional shopping has also accelerated due to Covid-19 Pandemic.

While Indian consumers were already comfortable in buying non-essential products online such as clothes and electronics even before the pandemic, but they are now also comfortable in buying essential products such as groceries from different shopping apps. The E-commerce market in India is anticipated to reach 350 billion US\$ by 2030 from 46.2 billion US\$ as of 2020. The competition among e-retailers is increasing day by day so they are adopting different strategies to cope up with tough competition and gamification is one of them.

Researcher found that consumers over e-commerce platform are more influenced by fun and enjoyment factors (Yang et al., 2017). Gamification is an enjoyable and pleasurable experience for young consumers who have past experience of playing games (García-Jurado et al., 2019).

Gamification is nothing but using the game design elements into non-gaming domains to modify consumer's behaviour (Deterding et al., 2011). Therefore, companies used gamification to make the buying experience more appealing and stimulating. Many Corporations are increasingly implementing the gamification as a fast-emerging trend as a marketing strategy (Yang et al., 2017). Even corporations belongs to different domains are increasingly implementing gaming elements as their marketing strategy for increasing consumers engagement towards brand (Gartner Research, 2011). In the year 2018, gamification generated an estimated \$5.5 billion worth with a 600% prospective increase in gamified business apps downloading by users (Lynkova, 2019). According to economic times, currently gamification is valued at \$12 billion and predicted to increase annually by 30% to reach \$31 billion by 2024 (m.economicstimes.com). Now, gamification is becoming a trending research topic from a theoretical perspective because it is helpful in enhancing the enjoyment, engagement and retention of consumers and creating an interactive user-platform interaction. Since gamification increases user motivation, engagement, and loyalty, it can change people's behaviour by making both traditional and online shopping more appealing and fun. Hence, in order to increase customer engagement on their websites, businesses have started to improve the e-shopping experience by adding game design features (Insley & Nunan, 2013). Researchers have looked into the important connections between gamification with various contexts like self-brand connections (Berger et al., 2018), & of product adoption (Muller Stewens et al., 2017), but there aren't many studies that look into the necessary factors that contribute to the success of gamified strategy. Therefore, researcher explores the key gamification elements that might enhance the engagement of customers and examine the relationship of gamification with e-sales.

Literature Review

Gamification Conceptualization

The term gamification has been invented by Nick Pelling in the year 2002. Even, Deterding et al. (2011) investigated that "Gamification" was originated in 2008 in digital media industry but recognized world widely in second half of 2010. Gamification refers as "applying game design elements to non-gaming contexts" to modify user's behaviours, customer retention and brand management. Instead, Werbach (2014) defined gamification as "the process of making activities more game like". This definition linked the gamification with fun through the help of "Volkswagen's the fun theory". This theory stated that implementing fun into activities can produce productive results. Desired outcome can be achieved with the proper adaptation of gamification with fun and enjoyable way (Hamari et al., 2014).

Seaborn & Fels (2015) also thoroughly investigated the idea of gamification in order to determine whether there is accord on gamification as a unique term and concept. They discovered that the accepted definition of gamification is still not being adhered to. There was no actual testing of theoretical studies. They also discovered a gap between theory and practice, where the former was not empirically tested and the latter lacked references in gamification-related practical work. Although, Koivisto & Hamari (2014) categorized gamification into three categories like immersion, social and achievement related gamification features. However, gamification is still new in retailing sector; mostly studies have investigated limited number of gamification elements (Harwood & Garry, 2015; Robson et al., 2016).

"Gamification and Cognitive Brand Engagement"

Consumer brand engagement is multidimensional concept and it is preferred effect of interaction and experience of user with a specific brand. It was firstly defined as "behavior by which people bring in or leave out their personal selves during work role performance" (Kahn, 1990). While Bowden (2009) defined brand engagement as "Psychological process that models the underlying mechanisms for repeat purchase by customers". In addition

to this, Dwivedi (2015) defined as “It can also be the consumers' positive, fulfilling, brand-use- related state of mind that is characterized by vigor, dedication and absorption”.

Consumer interaction with brand which creates co-creative customer experience and further turns into a customer interactive relationship with brand is considered as brand engagement (Sprott et al., 2009; Hollebeek et al., 2014; Brodie et al., 2011). In general sense, brand engagement is emotional condition which is an outcome of interaction with a brand. It is multidimensional concept and it has emotional, cognitive and social aspects (Zhang et al., 2017; Vivek et al., 2014; Brodie et al., 2013; Vivek, 2009). The level of a person's cognitive commitment to a particular brand is known as “cognitive brand engagement” (Hollebeek, 2011). According to Hollebeek et al. (2014), the cognitive viewpoint of “brand engagement” relates to how the user thinks about the brand and how to improve contact with it. It also relates to how long the user keeps their attention on the brand (Vivek et al., 2014; So et al., 2014).

In order to grasp the ideas in a gamified experience setting, Harwood and Garry (2015) examined consumer interaction mechanisms using gamification. They found that the primary motivator for gamification was to encourage (reward) customer behaviour and emotional responses, which further led to loyalty and the growth of interpersonal relationships. High-quality customer engagement was produced by a gamified experience setting. However, while identifying the detrimental effects of gamification, this study lacked sufficient research. Lucassen & Jansen (2014) also discovered gamification as an effective way to create positive interaction that leads to more engagement. And due to this, both marketing agency executives and major brand executives hold the belief that majority of brands will benefit by implementing gamification. Gamification renounced its importance in retail sector as well Jayasooriya et al. (2020) looked into the concept of gamification and tried to identify the importance of it in retail marketing. Even though a study by Insley & Nunan (2014) examined the function of gamification & its mechanics in enticing customers to interact with online

shops as gamification was still thought to be a beneficial strategy in customer engagement. They discovered that online gamification improved customer engagement and made online shoppers' shopping experiences more enjoyable. In essence, this study discovered that gamification is a powerful marketing technique for UK e-retailers.

Literature Gap

There hasn't been enough research on how gamification affects the cognitive component of brand engagement. A very less number of studies have existed which examined the relationship between gaming elements such as points, leaderboard, countdown timers and rewards and cognitive brand engagement. For example, some researcher found gamified interaction was favorably connected with the cognitive and emotional aspects of “brand engagement” by using flow theory. Gamified interaction was also discovered to be highly engaging, interactive and ideal challenge (Berger et al., 2017). Another empirical study conducted in the Lithuanian market looked at how gamification affects consumer's cognitive brand involvement. However, there are reasons to believe that gamified approach can favorably correlate with the brand engagement even though the link between gamification and brand engagement was not very strong (Gatautis et al., 2016). But still there is lack of empirical studies which proved the positive association between gaming strategy and “cognitive brand engagement”. There hasn't been much growth in the research of gamification in branding. Because there aren't many studies in this field, researchers now have the chance to investigate gamification in the context of online shopping.

“Objective of the study”

The major purpose of this research is to identify the relationship between gamification and brand engagement.

- 1.) “To explore the various elements of gamification in e-commerce context”
- 2.) “To investigate the effect of gamification on cognitive aspect of brand engagement in e-commerce context”

Research Methodology

Research Design

Descriptive research design has been used in this research study. Researcher used cross sectional research design in which information was collected only once from the sample of population element (Malhotra & Dash, 2007). The questionnaire was filled out by respondents based on their prior shopping history. The data was collected from the users which shop on these shopping applications such as i.e. Amazon India, Flipkart, Myntra, Meesho and Snapdeal. These applications are among the top ten shopping applications in India (Similarweb.com). Similar Web is a website which provides information about top ranking apps in all over the world.

Research Instrument

Researcher developed and used self administered questionnaire for this study. Survey has conducted on the individuals of Haryana state. Researchers have taken gamification and Cognitive brand engagement scale. Fourteen items was used for measuring gamification by “5 Point Likert scale” (5 is “Strongly Agree” & 1 is “Strongly Disagree”) developed by Raman (2020), Jurado et al. (2018), Hogberg et al. (2019), Aparicio et al. (2021). Five items was used for measuring Cognitive perspective of brand engagement scale by 5 Point Likert Scale anchored by “5” is “Strongly Agree” & “1” is “Strongly Disagree” developed by Algharabat et al. (2019), Hollebeek (2014), Leckie et al. (2016), Xi & Hamari (2019), Shouk & Soliman

(2021). The original statements related to gamification and cognitive brand engagement has been modified as per the requirement of the study.

Sampling

Non Probability sampling is that sampling which provide acceptable results if samples are selected carefully and in controlled way (Cooper & Schindler, 2007, pp 423). In order to conduct this study, the researcher used a “non-probability convenience sampling method” This sampling technique depends on the personal judgment of the researcher instead of chance selection procedures (Malhotra, N. & Birks, D.F., 2006, pp.362). 436 respondents who used shopping applications such as Amazon India, Flipkart, Myntra, Meesho & Snapdeal were taken. The people belong to age group between 13-35 years were known as Youth, but according to current policy, the age group 15-29 years was defined as youth. Thus, researchers decided to survey on 18-35 years age group because respondents belongs to this age group are known as young adults and thought to be more appropriate sample since they are more excited towards playing games.

Data Analysis:

We have used factor analysis to investigate the correlation of “gamification and cognitive brand engagement” and further Regression analysis to determine the effect of “gamification on cognitive brand engagement” in order to address the research problems listed above.

Table 1: Participant's Demographic Information

S. No.	Participant's Demographic Information	Respondents (N=436)
1. Gender of respondents		
	“Female”	154
	“Male”	281
2. Occupation of respondents		
	Student	135
	Professional (Self employed)	80
	Service (Government/ Private Sector)	221
3. Income of respondents		
	Upto Rs. 2.5 Lakhs	190
	Rs. 2.5 Lakhs upto 5 Lakhs	110
	Rs. 5 Lakhs upto 10 Lakhs	77
	Above Rs. 10 Lakhs	59

S. No.	Participant’s Demographic Information	Respondents (N=436)
4. Qualification of respondents		
	Under-Graduate	117
	Graduate	188
	Post Graduate and above	131
5. Age of respondents		
	18 - 23 Years	123
	24 - 29 Years	128
	30 - 35 Years	147

Above mentioned table i.e. Table No. 1 shown the demographic profile of the respondents, which is formed on various criteria such as Gender, Occupation, Income, Educational Qualification and Age. Above mentioned data set represents universe of study which is spread evenly based on different criteria available in dataset. The maximum number of respondents were male i.e. 64.45% and remaining were females i.e. 35.55%. Even, mostly respondents i.e. above 50% were from service class. The maximum number of respondents were belongs to 25- 35 years age group i.e. 63%.

Factor analysis approach was used for the exploration of the antecedents of gamification. Under this, statements which provide certain results were merged under specific factors. Factor analysis technique identifies the latent constructs form set of interrelated variables. And Factors were extracted with the help of principal component analysis method. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.856 showing that analysis results were good (Kaiser, 1970). “Bartlett's test of Sphericity” has a significance level of 0.000*, which indicates a high degree of correlation between the various variables in Table 2 (Hair et al., 1998).

Table2”: “KMO and Bartlett's Test

“KMO Measure of Sampling Adequacy”		0.856
“Bartlett's Test of Sphericity”	“Approx. Chi-Square”	6458.14
	“Df”	276
	“Sig.”	0

Source: Primary Survey

Rotated factor matrix is another name for rotated component matrix. Factor loadings under rotated component matrix provide comprehensible clubbing of statements in various factors. Factor extraction was done with Varimax rotation method in which Eigen value is more than 1. It extracted five factors with 67.166 percent of total variance. Malhotra and Dash (2016) stated that there is no

clear theory which states about the minimum level of factor loading worth considering in study. However, factor loadings above 0.5 should be considered for further analysis in this study. 0.657 is the minimum factor loading and 0.885 is the maximum factor loading observed in this research. Below mentioned Table 3, shown the factor's respective items and their loadings.

Table – 3: “Rotated Component Matrix”

	“Component”				
	“1”	“2”	“3”	“4”	“5”
Using this application, get me to think about this application.	0.885				
This application stimulates my interest into it.	0.819				
Using this application is absorbing and immersive.	0.764				
Anything related to this application grab my attention.	0.691				

	“Component”				
	“1”	“2”	“3”	“4”	“5”
Like to know more about this application.	0.657				
Countdown timers on shopping application grab my attention towards a product		0.868			
Countdown timers create sense of “Fear Of Missing Out” a product		0.828			
Countdown timers arouse desire or willingness to purchase desirable products		0.802			
Countdown timers create urgency to buy a product		0.737			
Countdown timers persuade users to grab product immediately		0.714			
Win interesting rewards (gifts/ special discounts/ vouchers/ coupons etc.) by playing game/contests on this application			0.818		
Rewards system enhance my shopping experience			0.805		
The fact of being able to watch video and get rewards make me more engaged in the application”			0.731		
The ranking of top reviewers is well designed”				0.882	
The ranking that can be obtained reflect the good work done as a reviewer”				0.778	
The ranking of top reviewers reflects my status when I comment ”				0.741	
Feel good when I redeem my Points					0.861
The way points are received when purchasing products on shopping applications is understandable”					0.826
Points give me sense of joy, beyond the money I will save”					0.798
Extraction Method: - Principal Component Analysis”					
Rotation Method:- Varimax with Kaiser Normalization”					
Rotation converged in 6 iterations”					

Source - Primary Survey

Further, table no. - 4 show the nomenclature of factors of gamification and cognitive brand engagement. These five

factors have explored on the basis of statements falls under below mentioned factors.

Table 4: Nomenclature of Factors of Gamification and Cognitive Brand Engagement

Using this application, get me to think about this application.	Cognitive Brand Engagement
This application stimulates my interest into it.	
Using this application is absorbing and immersive.	
Anything related to this application grab my attention.	
Like to know more about this application.	
Countdown timers on shopping application grab my attention towards a product	Countdown Timer
Countdown timers create sense of “Fear Of Missing Out” a product	
Countdown timers arouse desire or willingness to purchase desirable products	
Countdown timers create urgency to buy a product	
Countdown timers persuade users to grab product immediately	
Win interesting rewards (gifts/ special discounts/ vouchers/ coupons etc.) by playing game/contests on this application	Rewards
Rewards system enhance my shopping experience	
The fact of being able to watch video and get rewards make me more engaged in the application”	

The ranking of top reviewers is well designed”	Leader Board
The ranking that can be obtained reflect the good work done as a reviewer ”	
The ranking of top reviewers reflects my status when I comment”	
Feel good when I redeem my Points	Points
The way points are received when purchasing products on shopping applications is understandable”	
Points give me sense of joy, beyond the money I will save”	

Source- Primary Survey

Factor analysis determined the most important factors for the study and these variables were treated as independent variables in the further analysis in order to avoid the possibility of multi collinearity. Each respondent factor score were calculated on the basis of average score of each statement loading onto cognitive brand engagement factor.

“Reliability and Validity Analysis”

Gamification and cognitive brand engagement are two factors that are related in this study, and the reliability check was performed to assess the strength of the scale. In reliability analysis, the scale's internal consistency was examined using the Cronbach alpha coefficient (α). Cronbach alpha was found to be 0.866 for cognitive brand engagement and different elements of gamification found different coefficients such as 0.772 for countdown timers, 0.806 for rewards, 0.810 for leaderboard and 0.745 for points shown in Table-5.

This study examined the discriminant validity by examining the AVE i.e. average variance extracted of the scale. If a construct's AVE is higher than the variance shared by it and the other constructs in the model, discriminant validity is considered to be good (Chin, 1998). Due to the fact that each construct's AVE value is higher than its correlation value, the constructs in Table 5 below were found to be discriminantly valid. The range of composite reliability (CR) values for all factors was 0.82 to 0.89, exceeding the suggested threshold of 0.7. (Refer table -5). The values of Average Variance Extracted (AVE) were ranging between 0.6 - 0.7 which was more than recommended value of 0.5 (refer table -5). The values of CR for all constructs are greater than the values of AVE, which proved good convergent validity. The values are shown in below mentioned table i.e. Table - 5.

Table 5: Reliability and Validity of Factors

S.No.	Factor Name (No. of statements)	Cronbach's Alpha (α)	Validity Check		
			AVE (Average Variance Explained)	CR (Composite Reliability)	Is CR>AVE
			AVE > 0.5	CR > 0.7	
1	Cognitive Brand Engagement	0.866	0.6	0.88	Yes
2	Countdown Timer	0.772	0.63	0.89	Yes
3	Rewards	0.806	0.62	0.82	Yes
4	Leader Board	0.810	0.65	0.84	Yes
5	Points	0.745	0.7	0.87	Yes

The primary purpose of this research is to determine how game components like points, leaderboards, countdown timers, and rewards affect cognitive brand engagement in an e-commerce context. To identify the relationship between variables the regression analysis has been applied,

in which gamification has considered as independent variable and cognitive brand engagement has considered as dependent variable.

ANOVA is utilised in this study to examine the link between a number of independent factors and one dependent

variable because the difference between group averages is determined by a statistical technique known as ANOVA (Hair et al., 1998). The subsequent ANOVA results are shown in Table 5, and it was discovered that there is a

significant difference between different gamification elements like Countdown timer, rewards, leaderboards, and points for cognitive brand engagement, which is the study's dependent variable, $F(4,431) = 246.33, p = .000$.

“Table -6”:- “ANOVA”

“Model”		“Sum of Squares”	“df”	“Mean Square”	“F”	“Sig.”
1	Regression”	206.347	4	51.587	246.336	.000 ^b
	Residual	90.259	431	0.209		
	Total	296.606	435			
a. Dependent Variable: Cognitive Brand Engagement						
b. Predictors: (Constant), Rewards, Leaderboard, Countdown, Points						

Source: Primary Survey

Additionally, to understand the contribution of gamification on cognitive brand engagement a regression analysis was conducted. Cognitive brand engagement was the dependent variable, and gamification was employed as

the independent variable. The model was significant, $R^2 = 0.696, F(4, 431) = 246.34, p < 0.000$. $R^2 = .696$, suggesting that 69.6 percent variation is predicted by gamification on cognitive brand engagement shown in Table- 6.

Table – 7:- “Model Summary”

“Model”	“R”	“R ² ”	“Adjusted R ² ”	“Std. Error of the Estimate”	“Durbin-Watson”
“1”	.834 ^a	.696	.693	.45762	1.975
a. “Predictors”:- “(Constant)”, Rewards, Leaderboard, Countdown, Points					
b. Dependent Variable: - Cognitive Brand Engagement					

Source: Primary Survey

As per Cohen (1998) the R square values more than equal to 0.26 is considered Substantial in describing about the variance in dependent variable explained by independent variables. Table No. 7 shown Durbin Watson value i.e.

1.975 which is near to 2 and it shows zero auto co-relation. Positive autocorrelation exists if Durbin Watson value is smaller than 2 but negative correlation exists if Durbin Watson value is greater than 2.

Table 8: Coefficients

“Model”		“Unstandardized Coefficients”		“Standardized Coefficients”	“t”	“Sig.”
		“B”	“Std. Error”	“Beta”		
1	Constant”	0.21	0.121		1.733	0.084
	Points	0.148	0.045	0.142	3.307	0.001
	Leaderboard	0.263	0.043	0.239	6.12	0
	Countdown	0.148	0.035	0.161	4.203	0
	Rewards	0.386	0.039	0.417	10.017	0
a. Dependent Variable: - Cognitive Brand Engagement						

Source: Primary Survey

Table- 8 shown the standardized (β) and unstandardized (β) values of regression coefficient and their predictive power. The predictive cognitive Brand Engagement is equal to $0.21 + 0.148$ (Points) + 0.263 (Leaderboard) + 0.148 (Countdown) + 0.386 (Rewards).

The t values and their respective significance levels indicated that in addition to countdown timers, rewards, leaderboard and points also contributed significantly to the prediction equation. Henceforth, overall results supported all hypotheses.

Conclusion

Gamification used as a vital marketing strategy to engage, motivate and to modify the behaviour of users. The purpose of using gamification for organizations is to enhance user's enjoyment and to satisfy intrinsic needs of users. There are number of studies exists but still there is lack of empirical studies on how gaming elements or gamification leads users towards brand engagement. As previous studies proved that there is dearth of research studies that thoroughly investigated the impact of different gaming elements or mechanics on user's psychology and behaviour (Nacke & Deterding, 2017; Huotari & Hamari, 2017; & Koivisto & Hamari, 2019). As a result, researchers investigated the connection between various gamification elements, such as points, leaderboards, awards, and countdown timers, and cognitive brand engagement in the context of e-commerce. The study's empirical findings indicate that all gamification elements, such as points, leaderboards, countdown timers, and rewards, have a significantly favorable impact on consumers' cognitive brand engagement. The overall outcome demonstrates that gamification has a considerable impact on cognitive brand engagement. Some previous studies showed the similar results such as immersion related gamification feature has positively related with the social brand engagement. Moreover, achievement-related and social-related gamification features had a significant impact on all facets of brand engagement, including cognitive, emotional, and social engagement (Xi & Hamari, 2020). In addition, this study is helpful for practitioners, gamification service providers and social

media marketers because it provide useful guidance to them for enhancing the effectiveness of gaming elements in non gaming environment.

Limitations and Future scope

The impact of gamification has been empirically tested with cognitive brand engagement in this study but still there are numerous limitations which provide base for future research. The foremost limitation is that this study is based on e-commerce only so it might be possible that results of this study not appropriate beyond e-commerce platform. So, different gamified services must be selected for future research as their research area. Moreover, only four components of gamification has been explored in this research study thus future studies could consider other gamified elements as well which may affect other brands and communities. Further, another limitation is that the experimental design is not used as sampling design as it is suggested that results will be more rigorous if researcher use experimental design method in gaming studies. Future researcher could use experimental research design to get more accurate results. Furthermore, researcher used self administered questionnaire for survey to collect data, which might create troubles like wrong interpretation of questions, biased responses and a dependence on the introspective ability of respondent. In addition to this, the outcomes of this research may not be applicable to worldwide because survey is conducted only in Haryana state.

Furthermore, this study only investigates the consumer perspective towards gamification and how it impacts the consumer towards brand engagement. Future studies could investigate the industrialist perspective towards various gaming elements on different brands. Finally, last but not least, the effect of gaming elements on single aspect of brand engagement i.e. cognitive aspect has been investigated in this research so further studies can examined the other perspectives of brand engagement as well and this relationship can be tested by considering other characteristics of users such as cultural differences, personality and demographic as moderating variables.

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