Impact of Social Gratification and Game Design Elements on Social Network Gaming Habit: Mediating Role of Consumer Satisfaction

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Abstract

Social Network Games (SNGs) have gained worldwide acceptance and acknowledgment in recent times primarily due to free to play revenue model. The purpose of this paper was to explore the technical and behavioral determinants of social network gaming habit formation among young consumers. Data was collected from a sample of 500 young consumers of SNGs in Pakistan by quantitative approach out of which 461 responses were considered appropriate for data analysis. The survey was conducted via questionnaires and SEM was used as the analytical technique to test the research model. The application of SEM technique showed that both game design elements as well as social gratification are critical to the formation of social network gaming habit among young consumers of Pakistan. The study contributes to the literature of social network gaming sector by establishing the mechanism in which SNG service providers can take advantage from the technical as well as behavioral strategies to strengthen social network gaming habit among individuals. Social network gaming is an emerging sector and it is imperative for SNG service providers to know more about it, but little consideration is given to

this phenomenon. The current study fills the gap by examining the degree to which technical and behavioral factors help in formation of social network gaming habit.

Keywords – Social media marketing, export performance, SMEs, B2B, SEM

Introduction

In the past few years, Social Networking Services (SNSs) have become a global phenomenon (Ahani & Nilashi, 2020). Alongside the admiration of SNSs, Social Network Games (SNGs) are also emerging as the most predominant games being played globally. Social network games (SNGs) are linked to or played via social networking services (SNSs), for instance Facebook, and they normally includes multiplayer and ongoing playing mechanics (Järvinen, 2009). Individuals tend to play numerous SNGs since a free-to-play revenue model enables them to be played without any cost (Tyni, Sotamaa & Toivonen, 2011). Since portable devices have improved radically over the past years, consumers can simply utilize their cell phones to approach the social networking services (Alharthi, Guthier, Guertin & El Saddiq, 2017). Thus, online game developers and marketers have begun to create SNGs that combine the qualities of social networking services and mobile games. These games have managed to increase their player base to a great extent in past few years (Park, Baek, Ohm & Chang, 2014).

Web developers, game developers and mobile application developers have shown keen interest towards developing social network games (Shin & Shin, 2011). Some well-known examples of SNGs are 'FarmVille', 'CityVille' and 'Candy Crush Saga'. Created by Zynga, Farm Ville is among the pioneers of SNGs and it managed to gain huge popularity in a very short time span. In 2009, the active users of FarmVille were 26.5 million on daily basis. (Dybward, 2009). According to Järvinen (2009), Zynga, the globally renowned SNG developer, attracts more than 230 million monthly users on Facebook. Similarly, in the same year, PetVille managed to attract 18 million players (Kleinman, 2009). In 2012, King Digital Entertainment developed another popular SNG on Facebook, Candy Crush Saga. The game attracted millions of players and in 2013, it managed to generate a profit of US$568 million (Grubb, 2014).

The huge interest in internet games has urged the researchers to examine social network gaming and its impact on user's playing behavior. Empirical studies demonstrated that gaming produces a few constructive outcomes which motivate the users to play (Green & Bavelier, 2012;

Moisala, Salmela, Hietajarvi, Carlson, Vuontela, Lonka & Alho, 2017). The exponential growth of SNGs is due to their interactive characteristics. First, the reason of being popular is the ease of access, as these games don't need downloading and purchasing like other complex internet games. These games are free to play and they do not involve real-life rivalry or competition and the players can play game whenever they desire (Shin & Shin, 2011). Second, the notifications on player's newsfeed on SNSs regarding their gaming activities attract numerous individuals to explore SNGs. Third, SNGs use SNSs as a platform in which players can invite their companions continuously to discover what has been occurring in the games (Wei, Yang, Adamic, de Araújo & Rekhi, 2010) Finally, players can interact with others even when they are offline which satisfies the need of social interaction and provides the players with an opportunity to share their gaming experiences (Fields & Cotton, 2012). Apart from that, the most mainstream revenue model for game developers is advertisement or selling in-game content. Keeping in mind the preferences of users, developers are engaged in making creative and innovative games in order to generate revenue by altering the game content according to user's interest (Nieborg, 2015).

In everyday lives, individuals rarely do things for the first time instead a big part of behavior is determined by habits (Neal, Wood, Labrecque & Lally, 2012). Habit indicates learned behavior of acts that generate automatic responses under specific conditions without thinking deliberately (Amoroso & Lim, 2017). Habit is a behavior, a process or a psychological construct (Mazar & Wood, 2018). Habit strength foresees future behavior in online environments (Wohn, 2012). In particular, gaming habit reflects automatic gaming behavior by individuals. According to the research, users who frequently use IT devices become habitual users. According to Limayem, Hirt and Cheung (2007), individual's intention to constantly engage in gaming behavior is strengthened by habits. Numerous researchers have studied gaming habits, its outcomes and gaming inclinations in the developed countries. However, till yet, little consideration has been paid to social networking gaming habits in developing countries resulting in the lack of understanding user preferences. Pakistan is one of the most important developing country where internet gaming is emerging and it is acknowledged by

youth, yet there isn't any broad research accessible about this extensive activity. Thus, there is a need to examine gaming habits of SNGs consumers in Pakistan.

In order to enhance the understanding about comprehensive phenomena, this study is conducted to explore social network gaming habits in perspective of a developing country, Pakistan. It has attempted to identify the impact of social gratification (SG) and game design elements (GDE) on social network gaming habit (SNGH) through social characteristics of players, attractive game's interface and their optimal experience while playing using Uses & Gratifications Theory (U&G). Further, it attempts to provide deep understanding about how consumer satisfaction (CS) explains this relationship in strengthening gaming habit and helps the developers to earn revenue by keeping consumer preferences in mind. To explore this emerging field in developing countries, this study aims to provide a substantial foundation for future research.

Theoretical Background

Game Design Elements

Game design elements refers to the utilization of necessary design elements to make the game more attractive to the players. Game design elements play a significant role in changing behavior of online gaming consumers (Wee & Choong, 2019). Schell (2008) proposed Elemental Tetrad Model which highlights the key elements for effective game design. The model consists of four elements: challenge, variety, novelty and design aesthetics.

Challenge - Game mechanics for instance, badges, leaderboards, progress bars and points force the players to achieve challenging goals (Deterding, 2012). Game design should balance the player's skills and difficulty level to provide challenge (Söbke, Hauge & Stefan, 2017).

Variety - The kind of story in a game depends on its genre including action, adventure, fighting, puzzling or racing games (Marchand & Hennig-Thurau, 2013). The number of choices, variety or options satisfies the user's needs (Edwards-Schachter, 2018).

Novelty - Rapid technological changes replace the current games and lead to new games at a rapid pace (Hofacker, de Ruyter, Lurie, Manchanda & Donaldson, 2016). Novelty seeking behavior is connected with personal traits driven by sensation seeking and curiosity. Individuals

shift their attention towards a novel, exciting and high arousal activity (De Smul, Heirweg, Devos & Vankeer, 2019).

Design Aesthetics - For engaging experience, appearance plays an essential role as it attracts players (Hofacker, de Ruyter, Lurie, Manchanda & Donaldson, 2016). Design aesthetics refers to the visual appearance of the game which includes color, shape, pattern and texture (Qu, Mao & Li, 2018).

Social Gratification

There is a distinction between gratification sought and gratification obtained (Bradley, 1974). The gratification that individuals expect from a medium before coming in contact with it is referred as gratification sought, while gratification obtained refers to gratification that users actually experience after coming in contact with a medium (Katz & Blumler, 1974). Social gratification depicts individual's social expectations by maintaining social relationships. According to Liu, Cheung and Lee (2016), social interaction and social presence are considered as the major dimensions of social gratification. In SNSs literature, social enhancement has also been considered as a significant component of social gratification.

Social Interaction

Schutz (1967) considered social interaction as social reality. According to Ritzer and Stepnisky (2017), individuals relate to the world by socially interacting with each other. According to Chen and Lin (2018), individuals communicate, work or play together in a society in order to socially interact.

Social Presence

Short, Williams and Christie (1976) conceptualized social presence as an interpersonal relationship during a mediated discussion. The two main components of social presence are intimacy and immediacy. Intimacy reflects the feeling of connectedness during an interaction while the psychological remoteness between the communicators is referred to as immediacy. Xu, Ryan, Prybutok and Wen (2012) presented social presence theory which argues that media allows the individuals to obtain personal connections.

Social Enhancement

Social enhancement is a basic type of social learning (Franz & Matthews, 2010). As proposed by Matthews, Paukner and Suomi (2010), the observer behaves in a similar conduct by noticing another individual in social enhancement context. The practice of this behavior gradually increases in the observer and it increases the chances of performing the same behavior in future which tends to be a habitual behavior.

Consumer Satisfaction

Consumer satisfaction is a broader and widely known concept which is extensively examined in consumer behavior literature (Setiawan & Sayuti, 2017). Consumer satisfaction is a measure to know whether a product or a service satisfies consumer's expectations or not (Prayag, Hassibi & Nunkoo, 2019). Consumer satisfaction is basically an outcome of service quality and leads to repeated behavior towards a specific product or service (Szymanski & Henard, 2001).

Social Network Gaming Habitual Behavior

A habit is usual manner of behavior that when started runs on its own (Mazar & Wood, 2018). Media habit is defined as individual's repeat media behavior in media consumption. The time people spend using social media relies more on habits (LaRose, 2010). Since, SNGs are digital game applications available at SNSs (Huang, Bao & Li, 2017), the time spent in playing SNGs particularly Facebook games can be predicted by individual's habits (LaRose & Eastin, 2004).

Hypotheses Development and Conceptual Framework

In the late 1940s, Uses and Gratification Theory (U&G) was introduced. The present research has incorporated this theory to explore that how individuals consume media to meet their needs and what is the motivation behind that. According to the theory, individual's needs, gratifications, motivation and expectations related to the media are known (Katz & Blumler, 1974). The reasons of individual's use of diverse SNSs such as Facebook (Shao & Kwon, 2019), Twitter (Ndubisi, Nataraajan, Al-Jabri & Sohail, 2015), WeChat (Gan, 2017) along with social network games (Dhir, Khalil, Kaur & Rajala, 2019) has been explored by U&G Theory.

According to Sailer, Hense, Mayr and Mandl (2017), the effective design of game elements enriches environment which affects motivational user experience. The successful application of game elements, for instance game dynamics, game mechanics and aesthetics has produced remarkable results on user's emotions and motivation to play (Prena, Reed, Weaver &

Newman, 2018). According to the studies, game design elements can influence positive outcomes, such as behavioral intentions (Mitchell, Schuster, & Drennan, 2017; Yam, Russell-Bennett, Foth, & Mulcahy, 2017). LaRose (2010) explained that after the initial adoption, motivation explains little about the time individuals spend using media while that usage relies more on habits. Motivation is necessary to repeat actions and those repetitive actions create habits (LaRose, 2010). Previous studies identified that people spend time palying SNGs due to their habits and this behavior is due to the specific features of games resulting in repetitive actions (Wohn, 2012). In social network gaming context, it is hypothesized that if the game design elements of SNGs provides an interactive environment, then the users will repeatedly play in the future which is essential for habit formation.

H₁: Game design elements have a positive influence on social network gaming habitual behavior

According to Gan (2017), social gratification is the key element in the implementation of U&G model in SNSs context. By nature, humans are always in search of social relationships (Hülür & MacDonald, 2020). U&G scholars have also demonstrated that social interaction is a key element for social media users in making choice for social media consumption. Individuals consume social media in order to interact with other people which allows them to socialize (Cao, Gong, Yu & Dai, 2020). In particular, SNGs, embedded in SNSs, attract the individuals for their social stimulation as they can have interpersonal relationships and can interact with other SNG players immediately (Williams, 2006). These games, along with the medium of playing games, act as a social oriented place where personal relationships are formed and social needs are fulfilled (Huang & Hsieh, 2011). According to U&G paradigm, media use is the result of intentional choice while gratification needs are best explained by habits (Newell, 2003). So, accordingly it can be inferred that these social gratifications that a user obtains in SNGs, provides pleasure and develops habit. Therefore, it is hypothesized that:

H2: Social gratification has a positive influence on social network gaming habitual behavior

Wee and Choong (2019) elaborated that gamification is a technique to motivate playing behavior of user by creating a fun environment while satisfaction is the final outcome of motivation (Idiegbeyan-Ose, Opeke & NWOKEOMA, 2018). Thorngate (1976) depicted

positive association between satisfaction and habit development. According to him, if a response generated is satisfactory then it will tend to be a habit rather than a thought. Amoroso and Lim (2017) also confirmed that satisfaction explains the true effects of habits. So, it can be stated that effective game design elements satisfy the consumer and that satisfaction leads towards habit formation i.e. consumer satisfaction mediates the relationship between game design elements and social network gaming habitual behavior.

H3: Consumer satisfaction mediates the effect of game design elements on social network gaming habit

Individuals with social integrative needs satisfy their needs for socializing through SNSs (Joo & Sang, 2013). Empirical studies demonstrated the impact of satisfaction on habit (Limayem, Hirt & Cheung, 2007; Amoroso & Lim, 2017). Past satisfactory experience is the key determinant for habit formation as it increases individual's inclination to repeat same behavior. As the consumers gradually proceed from initial adoption of a product/service to the continued use, the impact of behavioral intention weakens and the impact of habit formation strengthens (Wang, Harris, & Patterson, 2013). From consumer's perspective, satisfaction is strongly linked with habit and consumer's dedication to repeat a specific behavior (Lin, Huang & Hsu, 2015). Therefore, in SNG context it can be concluded that social gratification needs satisfy the consumers and once they are satisfied, this satisfaction results in habit formation i.e. consumer satisfaction mediates the relationship of social gratification and social network gaming habit. Thus,

H4: Consumer satisfaction mediates the effect of social gratification on social network gaming habitual behavior.

Figure: Conceptual Framework
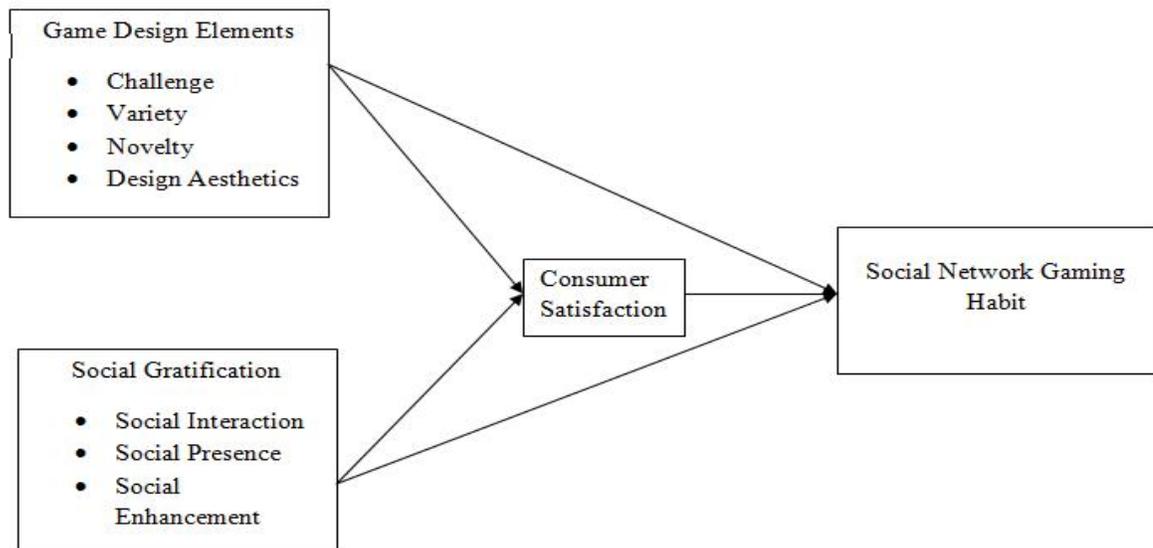
Methodology

Data Collection and Target population

The data was collected through online questionnaire based survey as questionnaire allows numerous benefits while conducting preliminary research and it is an inexpensive and effective method to manage a large population (Recker, 2012). Questions were extracted from existing scale of variables and presented in easy language to avoid any misconception. A quantitative questionnaire was developed in 5 point Likert scale to determine player's needs, preferences, habits and satisfaction.

The population of this study was Pakistani SNG players such that it may prove U&G model that associates SG and GDE influence in developing SNGH among the youth and adults of Pakistan. To test research model and all hypotheses, data was collected online from Facebook groups and respondents answered on the basis of experience with their favorite SNGs. Facebook was selected as it is the most popular game forum (Burke, Cheng & Gant, 2020) and it contains regular game players as compared to other social sites or at least give notice to these games. The study comprises of 500 as sample size. Table 1 explains the detailed sample demographics consisting of gender, respondent's age and educational level.

Table 1

Demographic (Sample: 461)

Demographic	Characteristics	Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	251	54%	54%	54%
	Female	210	46%	46%	100%
Age (in years)	15-19	91	20%	20%	20%
	20-24	173	37%	37%	57%
	25-29	197	43%	43%	100%
Educational Level	Matric	46	10%	10%	10%
	Intermediate	59	12.7%	12.7%	22.7%
	Graduate	161	35%	35%	57.7%
	Masters	170	36.8%	36.8%	94.5%
	MS/M.Phil	25	5.5%	5.5%	100.0%

Measurement Scale

As shown in Table 2, Game Design Elements comprises of 13 items, Social Gratification comprises of 9 items, Consumer Satisfaction comprises of 3 items and Social Network Gaming Habit comprises of 4 items. All items were adapted and modified to present study's context.

Table 2

Items for Measuring Variables

Variable	Dimension	Items	Item's Source	RecentlyValidated
Demographics	-	5	N/A	N/A
Game Design Elements	Challenge	3	Koufaris (2002)	Merikivi, Tuunainen and Nguyen (2017)
	Variety	3	Webster and Ho (1997)	Merikivi, Tuunainen and Nguyen (2017)
	Novelty	4	Huang (2003)	Merikivi, Tuunainen

				and Nguyen (2017)
	Design Aesthetics	3	Van der Heijden (2004)	Merikivi, Tuunainen and Nguyen (2017)
Social Gratification	Social Presence	3	Weibel et al. (2008)	Li et al. (2015)
	Social Interaction	3	Lee (2009)	Zhu et al. (2015)
	Social Enhancement	3	Dholakia, Bagozzi and Pearo (2004)	Cheung, Chiu and Lee (2011)
Consumer Satisfaction	-	3	Park and del Pobil (2013)	Park et al. (2014)
Social Network Gaming HabitualBehavior	-	4	Verplanken and Orbell (2003) and Limayem et al. (2007)	Chiu and Huang (2015) and Hsiao, Chang and Tang (2016).

Empirical Results

This study was executed by utilizing AMOS 22.0 using SEM analysis. The research study followed two step modelling approach as proposed by Anderson and Gerbing (1988). First step comprised of testing reliability and validity through the measurement model. In the second step, hypothesis testing was done through the structural model.

Reliability and Validity

Table 3 presented scores of cronbach's alpha to all constructs. To assess consistency of questionnaire respondents, cronbach's alpha was considered (Mitchell & Jolley, 2012). According to Nunnally (1978), benchmark T value for cronbach's alpha is 0.70 and after evaluating it can be seen that the result for each construct is higher than 0.70 which meets the condition. The Composite Reliabilities related to all constructs also exceed 0.70 meeting the condition proposed by Fornell and Larcker (1981). The Average Variance Extracted is also more than 0.5 meeting the proposed condition (Bagozzi & Yi, 1988). It indicates that the constructs within the model are well explained by the items in the questionnaire.

Table 3

Reliability and Convergent Validity

Construct	Mean	SD	Crocnbach's Alpha	CR	AVE
Game Design Elements	2.91	1.009	0.86	0.915	0.764
Social Gratification	2.99	0.991	0.79	0.901	0.625
Consumer Satisfaction	2.89	1.238	0.89	0.923	0.669
SNG Habit	3.11	1.117	0.85	0.912	0.591

The process to check discriminant validity for structural equation models was suggested by Fornell and Larcker (1981). According to him, the correlation of the construct with other constructs should always be less than the square root of AVE for an individual construct. In table 4, the square roots of AVE for all constructs are shown in diagonal elements. As it can be seen in the Table 4 that this condition is met in all cases, hence, discriminant validity was established in this study.

Table 4

Discriminant Validity

	GDE	SG	FL	SNGH
GDE	.87			
SG	.48	.79		
CS	.51	.58	.82	
SNGH	.47	.47	.52	.77

4.2 Confirmatory Factor Analyses

The goodness of fit using a $\chi 2$ test was examined. This study has considered Confirmatory Factor Analysis (CFA) as the assessment of fit and to assess the model fitness via AMOS 22.0. Bentler and Bonett (1980) proposed that $\chi 2/d$ is an appropriate measure in estimating the goodness of model fit and it must not exceed 5.0. According to Scott (1995), Goodness of Fit Index (GFI) which is the proportion of variance accounted must exceed 0.90. A good fit for

Incremental Fit Index (IFI) is above 0.90 (Bollen's 1990). According to Bagozzi and Yi (1988), for an ideal Comparative Fit Index (CFI) it should exceed 0.90 and for Root Mean Square Error of Approximation (RMSEA), ideal value is less than 0.80. According to Bentler and Bonett (1980) Normed Fit Index (NFI) which is the incremental measure of goodness and Tucker Lewis Index (TLI), both must be more than 0. 90. Less than 0.05 in an ideal condition for Root Mean Square Residual (RMR) as suggested by Hu and Bentler (1999).

Table 5 lists the proposed and actual values for all indices. After testing, as the actual values are meeting the cut-off criteria for all indices, therefore, the fitness of model has been observed to be good.

Table 5

CFA

Fit Index	Cut-off Criteria	ResultsObtained
$\chi 2/df$	‹5	0.519
GFI	≥0.90	0.931
IFI	≥0.90	0.949
CFI	≥0.90	0.948
NFI	≥0.90	0.929
TLI	≥0.90	0.941
RMR	‹0.05	0.018
RMSEA	‹0.08	0.037

Hypotheses Testing

Mediation was performed using 500 samples. For measuring outcome of mediation, direct impact, indirect impact and total impact was assessed. Table 6 represents the direct impact of GDE and SG on SNGH while Table 7 represents the indirect effect of GDE and SG on SNGH after involving CS as a mediator.

As shown in Table 7, the direct effect of GDE and SNGH is significant (β = .157, p = .000). There is a basic assumption which needs to be satisfied for the significance of relationship that between LLCI and ULCI there should not be any 0 value. As the values of LLCI and ULCI are (.073, .340), respectively, so this direct relationship is considered significant. Thus, GDE has a

significant impact on SNGH which supports H1. The direct effect of SG and SNGH is also significant (β = .173, p = .017). There is not a 0 value between LLCI and ULCI (.044, .278), respectively, so this direct relationship is significant. Thus, SG has a significant impact on SNGH which supports H2.

The effect of GDE on SNGH was partially mediated by CS. According to Baren and Kenny (1986), partial mediation occurs when the exogenous variable's impact on endogenous variable is reduced after the involvement of mediator. The effects including total effect (β = .225, p = .001), direct effect (β = .157, p = .000) and indirect effect (β = .068, p = .000) were all significant and statistically different from zero. Mediation was performed using 500 sample size and bias-corrected 95% CI. Hence, we concluded mediation observed was partial.

Similarly, the effect of SG on SNGH was partially mediated by CS. The effects including total effect (β = .261, p = .001), direct effect (β = .173, p = .017) and indirect effect (β = .088 p = .003) were all significant and statistically different from zero. This mediation was performed using 500 sample size and bias-corrected 95% CI. As the mediator did not affect the significance of direct effect, partial mediation existed.

Table 6

Hypothesis testing

Direct

IV		DV	Estimate	S.E.	C.R.	P
GDE	⟶	SNGH	.317	.042	7.089	***
SG	⟶	SNGH	.380	.050	7.114	***

Table 7

Mediation

SNG Habit							
				BC 95% CI			
Variables and Effects	Point of Estimate		SE	Lower	Upper	P-Value	Mediation Observed

Mediator: Consumer Satisfaction						
Game Design Elements						
Total Effect	.225	.018	.025	.315	.001	Partial
Direct Effect	.157	.015	.073	.340	.000	
Indirect Effect	.068	.010	.102	.284	.000	
Social Gratification						
Total Effect	.261	.022	.023	.313	.001	Partial
Direct Effect	.173	.018	.044	.278	.017	
Indirect Effect	.088	.012	.092	.246	.003	

BC=Bias Corrected, CI= Confidence Interval

Discussion

The first aim of the research was to find the influence of GDE on SNGH. As this study has adopted U&G Theory which states that achievement and enjoyment are the elements which encourages gaming motivation so, the proposed hypothesis among GDE and SNGH was considered positive. The findings of this study supported this hypothesized relationship as it shows that each dimension of GDE positively affects SNGH. This goes with the early findings (LaRose, 2010). GDE encourages SNGH because it shapes player's interest and gaming experience. If the developers of SNGs provide user friendly game features, then consumers in turn are motivated to play and develop habitual behavior. Each dimension of GDE positively affects SNGH. Challenging game mechanics (Deterding, 2012), variety in playing features (Edwards-Schachter, 2018), novelty seeking behavior (De Smul, Heirweg, Devos & Vankeer, 2019) and engaging design aesthetics (Qu, Mao & Li, 2018) motivate the user to play repeatedly and it becomes their habit.

The second aim was to study the influence of SG on SNGH. Based on U&G Theory which states that individuals have certain needs for entertainment and they adopt media to obtain those needs, the proposed hypothesis among SG and SNGH was considered positive. The results proved that SG is a positive predictor of SNGH. Each dimension of SG positively affects SNGH. Communication through social interaction (Chen & Lin, 2018), personal connections through social presence (Xu, Ryan, Prybutok & Wen, 2012) and social learning through social

enhancement (Mattthews, Paukner & Suomi, 2010) provide social need fulfillment and results in formation of habit for a particular SNG. The third aim of the research was to explore the mediating impact of consumer satisfaction (CS). According to results, CS mediates the relationship of both, GDE and SNGH as well as SG and SNGH. GDE and SG are influential in developing CS and eventually lead towards SNGH.

Conclusion

This research has some implications for SNG service providers. This study explored social network gaming habits in developing country, Pakistan. This adds further to the understanding of U&G Theory in social gaming context. This study enriches the existing elements i.e. social interaction and social presence of social gratification (Liu, Cheung & Lee, 2016) by involving social enhancement as well. For game design elements, social network game developers can draw guidelines from these findings. As this study implemented Elemental Tetrad Model for game design elements (Challenge, Variety, Novelty and Design Aesthics) and linked them with this model. This study adds to the literature on consumer satisfaction by the discovery of mediating role of consumer satisfaction. In a practical perspective, this study provides the guidelines to the social network gaming developers for effective results. SNG developers and marketers are losing potential revenue as these associations are not much studied in Pakistan. They are recommended that if social gratifications that a user gains in SNGs, provide pleasure and satisfaction then the players would become habitual of playing and it will increase the revenue. They are also recommended that if game design elements are user friendly, then it will motivate the user to play repeatedly. Once they get motivated, they will become habitual. Moreover, if the game design is according to user's preferences and habits, it would be difficult for competitors to replicate.

This study has several limitations, which leads to future study recommendations. This study attempts to explore SNG industry in Pakistan from consumer's perspective. Future study may explore from developer's perspective. Facebook is used to analyze social network gaming behavior, future study might collect data from other social platforms. This study surveyed game players only but there might be people who seldom play SNGs or have stopped playing. Future studies should focus on their viewpoint regarding gaming.

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