Excessive Social Networking Sites Usage and Online Compulsive Game Buying: The Mediating Role of Consumer Materialism (With Special Reference to Undergraduates in Sri Lanka)

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ABSTRACT

Consumer compulsive buying is an important area of attention in Consumer Behaviour research. The study was designed to determine the predictors of online compulsive game buying apart from existing studies as an extension of knowledge and the context. Furthermore, this study also gathered insights from social comparison theory and empty self-theory. An online survey was conducted and gathered data from 165 undergraduates in Sri Lanka using convenience sampling. Data were analyzed using SmartPLS and SPSS software and the findings represented that, there exists a positive relationship among the variables and there is a full mediation effect of consumer materialism which goes in line with the previous literature in certain aspects. Furthermore, the implications of this study presented would be beneficial for marketers, policymakers, and practitioners in the field of consumer behavior.

Keywords: Consumer Materialism, Empty Self-theory, Online Compulsive Game Buying, Social Comparison Theory

1. Introduction

Consumer behavior is regarded as a part of everyday routine for many people and most consumption-related activities require a little involvement. For some individuals, consumption is a central and deeply involving task which in case of consumption becomes malfunction and indicates a compulsive quality (Faber et al., 1987). According to Shoham and Makovec Brenčič (2003), consumer-compulsive buying is a negative consumption phenomenon and plays a substantial role in research related to consumer behavior. Consequently, studying this behavior can yield modified or novel

aspects for the study of positive consumption behaviors. Also, this may potentially lead to contributing to society's well-being, which is an important criterion for the effectiveness of any research.

Simultaneously, advanced technologies resulted in the creation of a new lifestyle in society, which has rather different features. As a result of that, according to LaRose and Eastin (2002), consumers are exposed to different buying environments, including the Internet. Moreover, Bighiu et al. (2015) emphasize that the Internet and new technologies have become a combined part of living, and this made our lives more convenient to such an extent that it requires just one click to get whatever we want within a short period. The present young generation can be considered as the most adapted generation to online aspects than any other generation as they have grown up with the Internet. Therefore, they are more vulnerable to Compulsive Buying Disorder (CBD). According to Lee et al. (2016), although the relationship between Internet usage and compulsive buying is documented, Sharif and Khanekharab (2017) state that "little is known about this association in the Internet environment and determinants of online Compulsive Buying" (p. 01).

Furthermore, when considering the determinants of compulsive behavior, Donegan et al. (1983) in Faber et al. (1987) state that "no single factor is powerful enough to explain the cause of compulsive behavior and researchers have adopted an inclusive biopsychosocial model which assumes that physiological, genetic, psychological, social, and cultural factors all contribute to the development of compulsive behaviors" (p.133).

Moreover, the "Networked Readiness Index" (NRI) is a significant international assessment of countries' capacity of utilizing opportunities offered by Information and Communication Technologies (ICTs) (Kirkman et al., 2002). When considering the NRI ranking in 2020, Sri Lanka ranked 83rd out of 134 economies. Also ranked sixth among the lower middle-income countries and 14th place in Asia and the Pacific region. In the sub-pillars, Sri Lanka denotes a strong ranking (46th) in the future technologies and inclusion pillar than other countries. Among the indicators, Sri Lanka consisted a strong rank (30th) in Computer software spending (Institute, 2020). Also, Sri Lanka was the highest-ranked South Asian nation and became among the top five in the region in terms of overall ICT readiness in 2015 (Dutta et al., 2015).

Furthermore, Internet usage during the last five to six years has grown at a significant rate of 20% to 25% every year in Sri Lanka. It has been reported there are six million active social media users in Sri Lanka (Jain, 2018). The above facts imply that there exists high feasibility towards the heavy usage of Social Networking Sites among Sri Lankans.

Apart from that, with constant Internet growth and technological innovations, certain industries like online gaming have begun to flourish in Sri Lanka. The mobile technology boom in recent years has revolutionized the industry and opened the doors to a new generation of gamers. The gaming industry evolved around certain developed countries such as the USA, Canada, Japan, and the UK. Nevertheless, games of a similar standard are being developed by Sri Lankan local companies targeting the audiences of local as well as international contexts (Sittampalam, 2018).

The emerging tendency can also be proven by the launch of sites such as *Gamer. lk* in the year 2007 (Andrado, 2018). The industry tends to grow after launching game-developing studios such as GTS (which is considered one of the oldest game studios in Sri Lanka), *Dawn Patrol* (which develops games for Android, iOS, Amazon, and Windows), *Arimac, Lutendo*, etc. (Howson, 2016). Also, recently the National telecommunications services provider Sri Lanka Telecom (SLT) created the first eSport platform in Sri Lanka as a new culture of sport-themed video games (SLT, 2016). Furthermore, *Gamer. lk* facilitates the platform of inter-university games for undergraduates (Gamer. lk, 2020). These facts show the status and the emerging trend of the game industry in Sri Lanka.

The present study complying with the earlier theories attempts to examine whether excessive Social Networking Sites (SNS) usage and consumer materialism are two predictors of online compulsive game buying and to evaluate the mediating role of consumer materialism in this association as there exists limited research done in this regard and as it is a currently influencing emerging phenomenon. Furthermore, this study creates a profound approach on one hand as an extension to existing knowledge and on the other hand as a new contextual application based on a sample of young undergraduates in the Sri Lankan context, collecting data via an online survey using a structured questionnaire designed in the deductive reasoning approach.

2. Research Problem

This research is focused on examining the relationship between Excessive Social Networking Sites Usage and Online Compulsive Game Buying while mediating the role of Consumer Materialism. There is a lack of empirical research to prove this.

With constant Internet growth and technological innovation, certain industries have begun to flourish. The online gaming universe is one such industry. The mobile technology boom in recent years has revolutionized the industry and opened the doors to a new generation of gamers. Indeed, gaming has become so integrated with modern popular culture. Thereby, it is more reasonable to evaluate Online Game Buying behavior in addition to focusing on conventional buying products or shopping tendencies (Sittampalam, 2018).

The worldwide trend for such abnormal behavior can be identified according to Bighiu et al. (2015) the generation that has been brought up with the Internet – the students of today- is mainly at risk of developing compulsive buying disorder (CBD) considering that they are the most accustomed to the online world than any other generation. Although previous studies lack focus in this regard; specifically, on game buying, there exists high feasibility towards excessive Social Networking Sites (SNS) usage as well as online compulsive game-buying behavior in Sri Lanka. Moreover, when considering the Sri Lankan context, the younger generation is drawn to computer games and the Internet in the Sri Lankan context, which is causing an alarming rise in mental illnesses among young people. “One in every 10 children brought to the psychiatric unit at the Kiribathgoda base hospital, is found to be suffering from some form of mental disturbance, due to an addiction to gaming or the Internet” (Bandara, 2012).

Moreover, the study of Van Rooij et al. (2008) emphasizes that the inclination toward excessive Internet use may comprise other types of addictions such as excessive gaming behavior apart from shopping. Furthermore, Sharif and Khanekharab (2017) have indicated that excessive Social Networking Sites (SNS) usage and consumer materialism are two predictors of online compulsive buying in terms of online shopping. Despite this fact, it is questionable whether a similar theoretical basis could be applicable as it is, in terms of compulsive online “Game purchases”. Therefore, by

using the same two predictors this study focuses on determining compulsive purchasing of online games as an attempt to assist for an extension of existing knowledge.

There exist plenty of studies on the concept of compulsive buying and the relationships with several variables such as family structure (Rindfleisch et al., 1997, Roberts et al., 2003), peer pressure (Islam et al., 2017), and materialism (Pradhan et al., 2018, Tarka, 2020), etc. in marketing literature and psychology perspectives (Eren et al., 2012). These studies were conducted mainly in Western countries (Faber et al., 1987, d'Astous, 1990, Jiang and Shi, 2016, Scherhorn et al., 1990) and according to Ureta (2007), very few were carried out in other countries.

When reviewing the existing literature, there exists a notable lack of studies in the Asian context and specifically in the Sri Lankan context. Thus, the study attempts to contribute to the deficiency of literature on the concept of compulsive buying in Sri Lanka by examining whether there is a substantial relationship between excessive Social Networking Sites (SNS) usage and online compulsive game buying: mediating the role of consumer materialism. Moreover, the study further focused on undergraduates in Sri Lanka due to the tendency of youth inclination towards excessive Social Networking Site (SNS) usage and online game purchases.

3. Literature Review

Online compulsive game buying

In today's culture, shopping is a popular entertainment activity. Obsessive shopping, on the other hand, can turn such behavior into a harmful and undesirable state. Compulsive buying has come under scrutiny in consumer research (Rahman, 2023). In academia, there is a diversification in defining the term compulsive buying behavior. In psychiatric literature, Kraepelin (1915) in Eren et al. (2012) use “oniomania” while Bleuler and Brill (1924) in Eren et al. (2012) use “buying mania” to describe this behavior. Marketing scholars use the term “compulsive buying” to explain the behavior of consumers and define it as “chronic, repetitive purchasing that becomes a primary response to negative events or feelings” (Faber and O'Guinn, 1989).

In addition to that, online buying has expanded in popularity and convenience as a result of advancements in information technology and logistical transportation (Zheng, 2020). As a result, Compulsive buying has been a crucial concern as millions of individuals suffer around the globe. Also, the concept has been theoretical and practical attention to scholars and practitioners of marketing, psychology, psychiatry, economics, and sociology (Eren et al., 2012). Moreover, nowadays, compulsive buying is thought of as a behavioral addiction characterized by compulsive, intrusive, and irrational urges to buy things, along with unrestrained buying episodes that cause serious social or financial issues. Also, this behavior shares several traits with other addictive habits (Mestre-Bach, 2017). According to Donegan et al. (1983) in Faber et al. (1987) "no single factor is powerful enough to explain the cause of compulsive behavior and researchers have adopted an inclusive biopsychosocial model which assumes that physiological, genetic, psychological, social, and cultural factors all contribute to the development of compulsive behaviors".

According to LaRose and Eastin (2002), consumers are exposed to different buying environments, including the Internet. Moreover, Bighiu et al. (2015) emphasize that the generation that has been brought up with the Internet (the present-day students), is mainly at risk of developing Compulsive Buying Disorder (CBD) due to that they are the most adapted to the online world than any other generation.

Furthermore, previous studies have shown that Internet and SNSs usage significantly influence compulsive buying. According to Koran et al. (2006), compulsive buying is influenced by the Internet and SNS usage. Also, the study conducted by Griffiths (2000) states that there is a tendency for compulsive buying among individuals who suffer from Internet addiction and SNS usage. Moreover, the study conducted revealed a positive relationship between excessive SNS usage and compulsive buying. Furthermore, Sharif and Yeoh (2018) state that excessive use of social media has a positive impact on online compulsive buying. The study by Lee et al. (2016) emphasizes compulsive offline buying and Internet addiction both had a strong positive relationship with online compulsive buying.

There exist a limited number of studies on online compulsive buying (Sharif and Khanekharab, 2017). Also, there is a notable lack of studies specifically on online games in Sri Lanka. However, there exists a high tendency for gaming, as well as more and more developers, are also joining up with more promising games being made in Sri Lanka.

Furthermore, "Online Games" can be regarded as a significant concept, which might direct a tendency toward compulsion. Therefore, complying with the existing studies the present study focuses on online compulsive game buying, as an attempt for an extension in existing knowledge on the concept and an extension in the context apart from conventional studies.

Excessive social networking sites usage

Social Networking Sites also known as SNSs are one of the fast-growing media platforms which allow people to communicate and share information with others conveniently (Pornsakulvanich, 2018). According to Boyd and Ellison (2007), the definition of SNSs consists of three aspects; "(1) a constructed online profile, (2) a list of the users' friends and followers who are interacted with, and (3) a link to each friend, follower or contacts profile" (p. 211).

The trend of using SNS among university students seems to be increasing day by day and many of them are relying on its usage for interactions and communication (Hussain, 2012). This continuous use of technology may lead to "excessive use", something recognized as a public health concern according to World Health Organization (WorldHealthOrganization, 2015) and it can be associated with serious psychological and interpersonal relationship problems as addictions (Ho et al., 2017).

Due to the growth in usage, it is substantial to concentrate on the possible unfavorable effects of excessive use, as it can be problematic to society (Cao et al., 2011). Griffiths (2005) defines addiction as any behavior that fulfills the six primary components of addiction: salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse. Therefore, excessive SNSs usage is regarded as an addictive behavior (Pahlevan Sharif and Yeoh, 2018).

The adoption and usage of SNS by undergraduate students have generated a lot of interest as evidenced by the rapidly expanding literature (Wang et al., 2012). To date, the scientific literature addressing the addictive qualities of social networks on the Internet is scarce (Kuss and Griffiths, 2011). As per the literature, the study focuses on excessive Social Networking Sites usage as the independent variable and also as a predictor of online compulsive game buying.

Apart from that, there is a phenomenon known as "comorbidity" in psychiatry which explains multiple compulsive behaviors existing at the same time. This concept emphasizes that a compulsive buyer concurrently demonstrates other compulsive behaviors (Faber and O'Guinn, 1989). This concept provides insight into the present study as it determines the relationship between excessive SNSs usage and online compulsive game buying. Based on all the relevant facts, the following hypothesis was derived for the study.

H1: Excessive Social Networking Sites Usage Leads to Online Compulsive Game Buying Behavior.

Consumer materialism

Materialism is regarded as a consumption-related aspect that has gained extensive consideration (Belk, 1984). According to Shrum et al. (2013) materialism is "the extent to which individuals' effort to engage in the construction and maintenance of the self through the possession and use of products, services, experiences, or relationships that are perceived to provide desirable symbolic value" (p. 1180).

Belk (1984) conceptualized materialism as a personality trait and Richins and Dawson (1992) conceptualized materialism as a value and defined it as "a set of centrally held beliefs about the importance of possessions in one's life" (p. 308). Also, they have enclosed materialism around three domains such as success, centrality, and happiness. According to Richins (2004), the domains were described as "the use of possessions to judge the success of others and oneself, the centrality of possessions in a person's life, and the belief that possessions and their acquisition led to happiness and life satisfaction" (p. 210).

According to Mukerji (1983), materialism is regarded as a proportion of human nature and personality, which exists generally in any culture. Muncy and Eastman (1998) state that, it is important to understand materialism for consumer researchers and marketers based on two contrasting causes: (1) to nurture materialism for the development of societal economic wealth and possessions and (2) to recognize the ill effects of materialism on consumer ethics.

Apart from that, according to *Social Comparison Theory*, comparisons are considered a significant determinant of the behavioral intentions of the younger generation (Islam et al., 2018). Also, Hanus and Fox (2015) state that, people externally gain satisfaction through the comparison of their material belongings with peers and media celebrities. Also, scholars approve that high socialization is an effect of social comparisons (Fitzmaurice and Comegys, 2006). Moreover, socialization is regarded as a key cause of material gains (Chan et al., 2006).

Therefore, according to Kamal et al. (2013), excessive SNS users may replace their discrepancies in self-concept with attachment to material objects and seek comfort in compulsive buying. This is also consistent with *Cushman's empty-self theory*. Also, there exist initial studies that proved a significant relationship between social media usage and materialism (Kamal et al., 2013, Sharif and Khanekharab, 2017). Relying on existing literature, the hypothesis was derived as follows:
H2: Excessive Social Networking Sites Usage Leads to Consumer Materialism.

Moreover, materialistic individuals presume that by buying more they gain psychological advantages such as developing their identity and having a better position in their social groups. This makes them more vulnerable to compulsive buying (Sharif and Khanekharab, 2017). Furthermore, by playing online games, materialists gain an intrinsic feeling of success and happiness. When a competitor is defeated in a game, it may feel successful for the players. Also, when playing the same game with peers, players may have a feeling of belonging (Kumar et al., 2019). Although the consumption here exists merely in the imagination, imagined events have very real effects on material reality as it stimulates the player to behave in particular ways that would allow the imagined things to become tangible in some form or another (Jenkins, 2011). Accordingly, the hypothesis was derived as follows.

H3: Consumer Materialism Leads to Online Compulsive Game-Buying Behavior

Empty-self Theory of Cushman (1990) supports this when defining the mediation effect of the study. In contemporary consumer society, there is competition among people for consumption to appear and exhibit their identities. Cushman believes that the 'empty self' of a consumer is constantly in need of 'filling up' through material consumption by consuming products and services. "The same pattern might be true in a virtual environment such as SNS" (Sharif and Khanekharab, 2017). Thereby the following hypothesis was derived,

H4: Consumer Materialism mediates the relationship between Excessive Social Networking Sites Usage and Online Compulsive Game Buying Behavior.

4. Methodology

The focus of the present study is to determine the predictors of online compulsive game buying. Looking at the philosophy of the study it can be noted that the study has a positivistic approach from an epistemological perspective. As the present study used the existing theories to test and verify, it follows a deductive approach.

The population of the present study is decided as the undergraduates of state universities in Sri Lanka and the sample includes 165 undergraduates (from 14 universities in Sri Lanka). Moreover, when we consider the sample, it appears that more students, especially those in higher education, are using social media without thinking about their physical, mental, and emotional well-being (Iwamoto, 2020). The trend of using SNS among university students seems to be increasing day by day and many of them are relying on its usage for interactions and communication (Hussain, 2012). On that logic, the sample was decided as undergraduates in Sri Lanka. The sampling technique used is convenience sampling under non-probability sampling.

To measure online compulsive game buying which is the dependent variable the modified version of the Compulsive Buying Scale by d'Astous et al. (1990) in Sharif and Khanekharab (2017) with 11 items was adapted by replacing certain wordings (Game buying) to match with the present study. To measure the independent variable of excessive Social Networking Sites usage, the 8 items Excessive Internet use scale used by Mueller et al. (2011) was used. It is also adapted accordingly by replacing

"Social Networking Sites Usage" instead of "Internet". To measure the mediating variable of consumer materialism, the nine-item Material Values Scale-MVS Richins (2004) was used. Furthermore, the study used a five-point Likert scale ranging from strongly disagree to strongly agree (1-5). Moreover, these indicators of the variables were previously used in similar studies by Sharif and Khanekharab (2017), Pahlevan Sharif and Yeoh (2018), and Mueller et al. (2011).

As the survey was undergone in the online arena, a structured self-administered questionnaire prepared using google forms was shared among state university undergraduates of 14 Universities via commonly used Social Networking Sites. The first section of the questionnaire requests responses to the three main scales of the study. The second section deals with data related to demographics such as age, gender, and the university. Moreover, three general questions related to SNS usage were included to determine the sample properly. For the analysis, the study focused on SPSS Software to interpret the descriptive statistics. Furthermore, Smart PLS-SEM 3 Software was used to assess the measurement and structural models to examine the reliability, validity, strength, and relationships of the constructs.

Although the online questionnaire was shared among 500 respondents, responses were received only from 189 responses. Among them, 24 were discounted due to the inadequacy of data. Thereby, the Response Rate was calculated as 37.8%.

Initially, the gathered data were imported to SPSS from MS Excel, and variable wise the normality tests were conducted. The calculated skewness and kurtosis values denoted that the data set is normally distributed as the values were between -1 and 1 close to zero. Also, the study shows that the independent variables are not correlated with each other through the Multivariate Normality Assumption. This was assessed through SmartPLS by calculating Variance Inflation Factor (VIF) values. The VIF values of the present study were lower than the threshold value of 0.5. This denotes that the residuals are normally distributed, and shows that there exists no multi-collinearity (The results were included in the analysis section under collinearity statistics).

To address Non-response Bias following the guidelines of scholars (Lindner et al., 2001, Mat Roni, 2015), the dataset was split into two subsets: 25% early and 25% late

responses by getting excessive social networking sites used as the variable of interest. The split datasets were subjected to an independent sample test. The test yields no significant differences between the two datasets denoting non-response bias is not a concern for the present study.

According to descriptive statistics of demographic variables, gender-wise, there were 58% of female respondents and 42% male respondents. Age categories of the respondents varied as 43% of respondents were between 20-22 years, 53% between 23-25, and 3.6% were above 25 years. Among the 14 state universities, the majority of the respondents were from the University of Sri Jayewardenepura denoting 21%.

Furthermore, the study consists of category variables to specify the sample. Based on the number of Social Networking Sites in which the respondents have accounts, 52.7% of them have 1-3 accounts. Furthermore, 30.9%of respondents were reported to be users of Social Networking Sites for more than three hours and 43% of respondents have more than 500 friends on Social Networking Sites.

The following Figure 1 conceptual framework depicts how the particular variables of the study connect. Variable Excessive Social Networking Sites Usage was treated as the independent variable and the variable of Online Compulsive Game Buying was the dependent variable. Consumer Materialism is treated as a mediating variable. The relationship between those variables and the role of the mediation effect of Consumer Materialism was determined from the study.

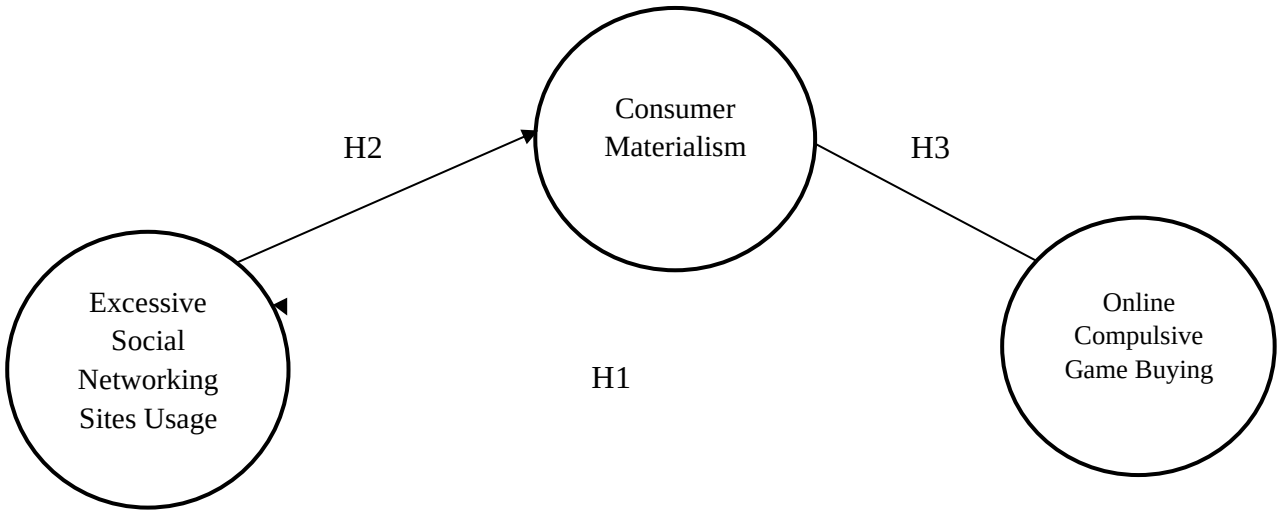

Figure 1: Conceptual Framework

Furthermore, the associations were derived as hypotheses as follows:

H1: Excessive Social Networking Sites Usage leads to Online Compulsive Game Buying Behavior

H2: Excessive Social Networking Sites Usage Leads to Consumer Materialism.

H3: Consumer Materialism Leads to Online Compulsive Game-Buying Behavior

H4: Consumer Materialism mediates the relationship between Excessive Social Networking Sites Usage and Online Compulsive Game Buying Behavior.

5. Data Analysis

Assessment of measurement model

In the PLS approach, assessing the measurement model involves testing the validity and reliability of the items in terms of convergent and discriminant validity. As the valid response sample was 165, PLS Algorithm was run with 330 iterations (doubled the size of the sample) by using the guidelines suggested by Hair Jr et al. (2016) in Wong (2016). After eliminating certain indicators, the validity and reliability were interpreted.

Indicator Reliability. Outer loadings of indicators are assessed to check the indicator's reliability. According to Hulland (1999), the Square of each of the outer loadings is taken to find the indicator reliability value. Wong (2016) states, "An indicator's outer loading should be 0.708 or above since that number squared (0.7082 equals 0.50, meaning the latent variable should be able to explain at least 50% of each indicator's variance" (p. 08). As shown in Table 01, indicators CB_1, CB_6, CB_7, CB_8, ESNS_5, ESNS_7, ESNS_8, M_1, M_2, M_5, M_8, and M_9 were deleted as the outer loadings were below the threshold value. Although the outer loading value of ESNS_1 which is 0.681 is lower than the threshold value of 0.7, it was replaced, as it did not create any impact on the increase of the (validity and reliability) alpha values.

Table 1: Indicator Reliability

Indicator	**Statements**	**Outer Loading Value**	**Square**
CB_2	Often buy games as seen in a site/ online store without planning, just to have it.	0.714	0.509
CB_3	Buying online games is a way of relaxing and forgetting problems.	0.722	0.521
CB_4	Something inside pushes me to buy online games.	0.804	0.646
CB_5	Times are having a strong urge to buy online games.	0.785	0.616
CB_9	As soon entering a site, wish to go to a store and buy games.	0.733	0.537
CB_10	Often bought an online game that's not needed when there's very little money left.	0.767	0.588
CB_11	Like to spend money on buying online games.	0.784	0.614
ESNS_1	Social Networking Site Usage is out of control.	0.681	0.463
ESNS_2	Social Networking Site Usage has caused problems.	0.723	0.522
ESNS_3	Others have objected to the amount of time spent using Social Networking Sites.	0.824	0.678
ESNS_4	Spend more time than planned using Social Networking Sites.	0.761	0.579
ESNS_6	Feel anxious when not able to access Social Networking Sites.	0.714	0.509
M_3	Like to own things that impress people.	0.715	0.511
M_4	Life would be better by owning certain things	0.766	0.586
M_6	Bothered when cannot afford to buy preferred things.	0.706	0.498

M_7	Buying things gives a lot of pleasure.	0.730	0.532

Source: SMART PLS data developed for the research

To be internally consistent, composite reliability should be 0.7 or higher. If it is exploratory research, 0.6 or higher is acceptable (Bagozzi and Yi, 1988). Table 02 shows that the Cronbach's Alpha values and the Composite reliability of all the reflective constructs were above the 0.7 threshold value which demonstrated high levels of internal consistency reliability for all reflective constructs. Convergent validity for each latent variable is evaluated by determining the Average Variance Extracted (AVE). It is preferable to have a 0.5 or higher value (Bagozzi and Yi, 1988). This study consists of AVE values greater than the threshold value of 0.5 denoting a higher convergent validity.

Table 2: Internal Consistency Reliability and Convergent Validity

Latent Variable	**Cronbach's Alpha**	**Composite Reliability**	**Average Variance Extracted**
Online Compulsive Game Buying	0.880	0.905	0.576
Excessive Social Networking Sites Usage	0.802	0.859	0.551
Consumer Materialism	0.707	0.820	0.532

Source: SMART PLS data developed for the research

According to Fornell and Larcker (1981) in Wong (2016), the square root of the AVE of each latent variable needed to be greater than the correlations among the latent variables as per the Fornell-Larcker criterion. The diagonal represents the square roots of AVE and off-diagonal values represent the construct correlations. In this study, according to Table 03, all three variables comply with the criteria denoting discriminant validity.

Table 3:Discriminant Validity

Variable	Online Compulsive Game Buying	Excessive Social Networking Sites Usage	Consumer Materialism
Online Compulsive Game Buying (CB)	**0.759**	-	-
Excessive Social Networking Sites Usage (ESNS)	0.243	**0.742**	-
Consumer Materialism (M)	0.365	0.354	**0.730**

Source: SMART PLS data developed for the research

Following figure 2 shows the path model derived after interpreting the validity and reliability.

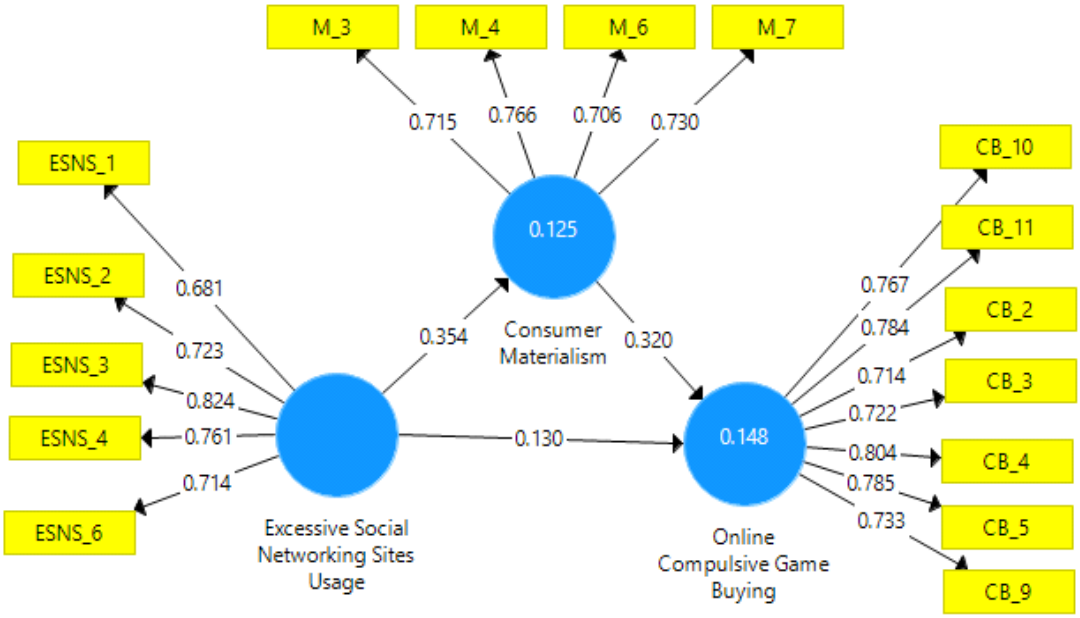

Figure 2: Path Model of SMART PLS

Assessment of structural model

To test the hypothesis of the study, structural model models were used. Initially, by running the PLS Algorithm the relationships between the variables were evaluated. Then by using the Bootstrapping technique the significance of the relationships was evaluated.

Collinearity Statistics (VIF). The collinearity issue of the constructs was assessed by validating VIF values which needed to be less than 5 or a Tolerance value of 0.20 or lower (Wong, 2016). The VIF values of the present study were lower than the threshold value of 0.5, which ranged from highest to 2.141(CB_4) and lowest to 1.316 (M_3). Therefore, it can be stated that the collinearity issue does not present between the constructs.

Coefficient of Determination (R^2) and Predictive Relevance (Q^2). As shown in Figure 01 path model, the coefficient of determination (R^2) is denoted as 0.148 for online compulsive game buying which emphasizes a 14.8% predictability by the two variables excessive Social Networking Sites (SNSs) usage and consumer materialism. According to Hair et al. (2011), the rule of thumb for R^2 is considered 0.75, 0.50, and 0.25, respectively, representing predictive accuracy as substantial, moderate, or weak. Although the R^2 of the present study is below the acceptable range, according to Moksony and Heged (1990) "low value of R^2 does not necessarily indicate that the impact is small and negligible" (p. 06). As human behavior cannot be predicted accurately, R^2 as low as 10% is generally accepted for studies in the field of arts, humanities, and social sciences (Ozili, 2016). Considering the predictive relevance (Q^2), as Wong (2016) states, the Q^2 value larger than zero for a particular endogenous construct indicates the path model's predictive relevance for this particular construct. Accordingly, the study yields predictive relevance as the Q^2 values are above zero.

Table 5: Coefficient of Determination and Cross-validated Redundancy

Variable	R Square	Q Square
Online Compulsive Game Buying (CB)	0.148	0.070
Consumer Materialism (M)	0.125	0.058

Source: SMART PLS data developed for the research

Effect size (F^2). Based on the f^2 value, the effect size of the omitted construct for a particular endogenous construct can be determined such that 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively (Wong, 2016). The effect size for the path model was determined as a medium due to the values being around 0.15 by calculating Cohen's f^2.

Table 6: Effect Size (f^2)

Variable	CB	ESNS	M
ESNS	0.017	-	0.143
M	0.105	-	-

Source: SMART PLS data developed for the research

Direct effect. Initially, the direct effect between the independent variable excessive social networking sites usage, and the dependent variable online compulsive game buying was assessed by eliminating the mediating variable of consumer materialism. İt denoted a p-value of 0.008 and a t-value higher than 1.96 representing a significant relationship as the p-value less than 0.05.

Indirect effect. The path coefficient 0.133 of excessive social networking sites usage and online compulsive game buying was denoted insignificant with a t-value of 1.504 which is less than 1.96. The other two indirect relationships were significant with a higher t-value than 1.96.

Table 7: Significance of Path Coefficients for the Indirect Effect

Path	Path Coefficient	t-Value	P-Value	Significance Yes/No
ESNS-CB	0.130	1.504	0.133	No
ESNS-M	0.354	4.402	0.000	Yes
M-CB	0.320	4.263	0.000	Yes

Source: SMART PLS data developed for the research

Mediation Effect and Magnitude of Mediation. As Hair Jr et al. (2014) state, "Mediation represents a situation in which a mediator variable to some extent absorbs the effect of an exogenous on an endogenous construct in the PLS path model" (p.115). To assess the mediation effect following the guidelines of Wong (2016), after bootstrapping using 330 samples and iterations, the indirect effect was calculated using Microsoft Excel by multiplying the path coefficients of the two paths standard deviation was derived as 0.039691493. Then the overall indirect effect was calculated by multiplying the t-values of the two indirect paths of the main model (4.366*4.224=18.441). Finally, the t value was derived as 472.87 after dividing the indirect effect by the standard deviation (18.441/0.039691493=472.87).

According to the calculated t-value, the indirect path mediation can be regarded as significant, as the t-value of 472.87 is greater than 1.96. (472.87>1.96). Wong (2016) denoted that having a significant indirect effect is the basis to decide the magnitude of the mediator variable.

Therefore, to determine the magnitude of the mediation, the VAF value is calculated as 0.94 by dividing the indirect effect using the total effect (18.441/19.427=0.94). According to Hair Jr et al. (2014), when the VAF value is greater than 0.2, it is considered a partial mediation and if VAF is greater than 0.8, it is considered a full mediation effect. According to the calculation, the Variance Account For (VAF) value is greater than 0.8. It can be considered as, a full mediation effect denoting a VAF value of .94 which is a percentage of 94%. Simultaneously, this finding leads to acceptance the of Hypothesis 4 (h4) of the present study.

By considering the above results it can be examined that the presence of a mediating variable (Consumer Materialism) direct effect between the variables Excessive Social Networking Sites usage and Online Compulsive Game Buying becomes insignificant due to the full mediation created by the variable Consumer Materialism.

6. Results and Discussion

The present study aims to determine whether excessive Social Networking Sites (SNS) usage and consumer materialism are predictors of online compulsive game buying as well as to determine the mediation effect of consumer materialism in this relationship.

In the present study, when considering the indirect effect with the presence of the mediating variable-consumer materialism, hypothesis 1 was rejected having a *p*-value higher than 0.05, which is 0.133. Therefore, the indirect effect result of the study is unable to support the previous literature of Sharif and Khanekharab (2017) and Pahlevan Sharif and Yeoh (2018) which indicates that individuals who excessively use SNS and excessively use the Internet (Lee et al., 2016), have a higher tendency to online compulsive buying than others. However, it goes in line with the study of Mueller et al. (2011) which also failed to support the hypothesis as excessive Internet use was not significantly correlated with compulsive buying.

In contrast, when there is no mediation (without the effect of consumer materialism) it can be stated that there is a significant positive relationship between excessive Social Networking Sites usage and online compulsive game buying.

Moreover, hypothesis 2 was accepted with a significant *p*-value of 0.000. this denotes that there exists a significant positive association between excessive Social Networking Sites usage and consumer materialism. Moreover, this study is also compatible with Cushman's empty-self theory and provides evidence for the fact that excessive SNS users may replace their deficits in self-concept with attachment to material objects and seek solace in compulsive buying. Furthermore, this study is consistent with social comparison theory and a previous study by Kamal et al. (2013) which proved social media usage as a significant determinant of materialism.

Furthermore, hypothesis 3 was accepted with a significant *p*-value of 0.000. Findings from this study also provide evidence for the positive relationship between consumer materialism and online compulsive game buying. This also provides evidence for the findings of Dittmar (2005), Dittmar et al. (2007), Mueller et al. (2011), Eren et al. (2012), and Sharif and Khanekharab (2017).

When considering hypothesis 4, was accepted after analyzing the mediation with a *t*-value higher than 1.96 and denoting a VIF value of 0.94 to state that there is a 94% significant full mediation effect. In previous studies, Sharif and Khanekharab (2017) confirmed that there is a partial mediation of consumer materialism and identity confusion in the association between excessive SNSs usage and online compulsive buying.

7. Implications

Theoretical Implications

Previous studies by Sharif and Khanekharab (2017) have indicated that Excessive Social Networking Sites Usage and Consumer Materialism are two predictors of Online Compulsive Buying in terms of online shopping. Despite this fact, it was questionable whether a similar theoretical basis could be applicable as it is in terms of compulsive online game purchases or not. By using the same two predictors this study focused on determining compulsive purchasing of online games. Although previous studies lack focus in this regard specifically on game buying, there exists a high feasibility towards Excessive Social Networking Sites Usage and as well as Online Compulsive Game Buying Behavior among Sri Lankan youth.

Thereby, this study attempted to assist in an extension of existing knowledge. Based on the findings it is considered that Excessive Social Networking Sites Usage and Consumer Materialism can be regarded as two predictors of Online Compulsive Game Buying. Also, there is a full mediation effect of Consumer Materialism in the relationship between Social Networking Sites Usage and Online Compulsive Game Buying. On that basis, the present study suggested that a similar theoretical basis could be applied to Game buying among Sri Lankan undergraduates context as well.

Practical Implications

The findings will benefit consumers, marketers, and the government as a whole. It can help the consumer to better understand the factors that lead to compulsive buying behaviour. On the other hand, this research can provide potential guidelines to policymakers about how to combat compulsive buying behavior and reduce its impact.

As for marketers, this study will help them to better understand the consumer to develop their marketing strategies. It is expected that this finding will improve consumer awareness of compulsive buying behavior and at the same time will help marketers to more appreciate the dynamics of consumer behavior to act ethically when promoting products that have the potential to create additive or compulsive behavior.

8. Conclusion

The findings of the present study state that, young adults who excessively use SNS tend to be more materialistic, and also, they may turn to online compulsive game buyers. Therefore, it can be stated that the similar theoretical basis of Sharif and Khanekharab (2017) can be applied to the present study concerning the game-buying concept as well. This is a fair attempt at an extension of existing knowledge. Furthermore, this is also an extension of context as according to the knowledge of the researcher there exists no study conducted in Sri Lanka in this regard.

The findings effort to provide useful insight for consumers, marketers, and the government as a whole to guide proper decision making. Moreover, policymakers may gain an understanding of future directions to combat or reduce the harmful effects of compulsive buying behavior. These findings will also enhance the awareness of marketers on compulsive buying to understand consumer behavior to act ethically when developing their marketing strategies and promoting products or services which are addictive or compulsive. Contradictorily, marketers may use to promote the game industry via Social Networking Sites and add more materialistic attributes to games, as materialism consists of a full mediation effect in the study.

9. Limitations and Directions for Future Research

The study consists of certain limitations. Since the study focused on a specific sample and used convenience sampling, it limits the generalization of the results. As it focused on a positivistic philosophy it was evaluated in a quantitative method so that it eliminated the focus of findings in an in-depth analysis done in exploratory research. Moreover, the data was collected by using an online questionnaire which leads to

common method biases and reduced the response rate from the respondents. It would be preferable to use several methods to prevent those issues.

For future research, apart from focusing on undergraduates as a sample, it would be preferable to focus on young adolescents who are more flexible towards technological advancement. It would be beneficial to focus on utilitarian and hedonic values as mediating variables for future research. Also, it would be preferable to study materialism in the virtual arena as Online Games are intangible products.

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