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RESEARCH ARTICLE

MICOM analysis of gender differences in Parasocial Interaction and Impulse Buying Behavior

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Abstract

Corporates and online consumers, irrespective of their gender, are increasingly focusing on social commerce with the rapid growth of social networking platforms like Facebook, Twitter, LinkedIn, and Instagram and media platforms such as YouTube. It is a common understanding that online shoppers these days are influenced by the celebrity/expert opinions or reviews given by other users on these platforms. It is interesting to know the response of men and women to such opinions. Few studies specifically explore these differences in impulse buying behavior. The main focus of this study is to explore gender differences in the relationship between para social interaction (PSI) and impulsive buying behavior on social commerce platforms in a sample taken from Punjab and Chandigarh in India. Additionally, we explore two key perspectives: the impact of an urge to buy and Impulse buying tendencies on actual impulse buying behavior. Each perspective looks at how gender influences buying behavior in different ways. MICOM analysis, as provided under PLS-SEM, is used to do the analysis. Results showed that gender acts as a moderator for impulse buying behavior. Female PSI has shown a greater impact on actual impulse buying behavior as compared to males. Perceived usefulness (PU) has a greater impact on perceived entertainment (PE) compared to females, and finally, for females, the urge to buy impulsively (UBI) leads to more impulse buying behavior compared to males.

Keywords: MICOM, Parasocial interaction, urge to buy impulsively, PLS-SEM, Impulsive buying behavior, Social commerce platforms.

Introduction

The Indian e-commerce sector is experiencing unprecedented growth, with projections indicating it will reach $163 billion by 2026, growing at a rate of 27% annually. In FY23, its gross merchandise value (GMV) stood at $60 billion, a 22% increase from the previous year, and is expected to rise to $99 billion by 2024, driven by the grocery and fashion/apparel sectors. By 2030, the market is forecasted to expand to $350 billion. Online retail penetration is also rising, from 4.7% in 2019 to an anticipated 10.7% by 2024. Additionally, India's retail market is set to grow to $2 trillion by 2032, with online shoppers increasing from 190 million in FY21 to 350 million by FY26. The digital economy is projected to hit $1 trillion by 2030, emphasizing the immense size and importance of the e-commerce market (Invest India, 2019). The emergence of social commerce, integrating social media with e-commerce, has transformed consumer and company behavior. Platforms like Facebook, Twitter, and YouTube facilitate buying, selling, sharing, and reviewing products, leveraging social capital for commercial activities (Liang *et al.*, 2011; Zhou *et al.*, 2013). Social commerce enhances consumer experience through user interactions and reviews, while businesses gain closer customer relationships and increase sales (Kim and Park, 2013; Hajli, 2014). Social commerce platforms (SCPs), especially those focusing on image sharing, have gained prominence since 2006, targeting specific segments such as women and lifestyle products (Hajli, 2015)

Theoretical Framework

The study employs the stimulus-organism-response (S-O-R) Model, originally developed in environmental psychology, to

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explain how environmental stimuli influence psychological states and behavior (Mehrabian and Russell, 1974). The model suggests that a stimulus (S) affects an individual's internal state (O), which subsequently drives their behavioral response (R) (Zhou, 2019). In online retail, stimuli encompass visible and audible shopper cues (Eroglu, 2001). For this research, the stimuli include Society-Related (SR) Features (Xiang *et al.*, 2016). The organism includes cognitive reactions such as perceived usefulness (Sun and Zhang, 2006) and affective reactions like perceived enjoyment (Koufaris, 2002). The response is the strong, immediate urge to buy impulsively (Adelaar *et al.*, 2003; Bressolles *et al.*, 2007; Parboteeah *et al.*, 2009; Liu *et al.*, 2013; Shukla and Mishra, 2014; Hashmi and Rasheed, 2019; Zhu *et al.*, 2020). The S-O-R framework is widely used to study online impulse buying, exploring how environmental cues influence cognitive and affective responses, including peer communication, usage intensity, and social media endorsements (Chan *et al.*, 2017; Assadam, 2020). This framework, rooted in environmental psychology, is adopted in this study to examine such dynamics (Figure 1).

Para Social Interaction

The theory of Para Social Interaction (PSI) was introduced by Horton and Wohl in 1956. Most research on PSI has focused on television and radio, defining PSI as a one-sided interpersonal relationship that viewers establish with media characters (Rubin & McHugh, 1987; Fu *et al.*, 2019).

PSI theory has also been applied to understand consumer behavior in online contexts (Labrecque, 2014; Ballantine and Martin, 2005; Powell, Richmond, and Williams, 2011; Thorson and Rodgers, 2006). Hoerner (1999) developed a PSI scale to measure the PSI potential of fictitious personalities on company websites. Ballantine and Martin (2005) used PSI theory to explore how passive members of an online community can be influenced by more active participants (Xiang *et al.*, 2016).

PSI theory examines the interaction between a media user and the consumed media, suggesting that lurkers may form relationships with other online users (Ballantine and Martin, 2005). Over time, users may develop a sense of closeness with each other. In social commerce platforms, this PSI relationship with community members can lead users to purchase products recommended by others or share information about their favorite products (Fu*et al.*, 2019).

Development of Hypotheses

Similarity

The concept of similarity, defined by Rogers and Bhowmik (1970) as "the degree to which people who interact are similar in beliefs, education, social status, and the like," plays a crucial role in social interactions. Research in social psychology indicates that people are naturally inclined to connect with others who share similarities, fostering smoother communication and interaction due to the inherent social nature of humans (Fu *et al.*, 2019).

The similarity-attraction principle suggests that individuals are naturally drawn to others who share physical appearance, background, interests, or personality traits (Fiske, 2014). This concept has been extensively studied in psychology and marketing, with numerous studies exploring the relationship between similarity and Parasocial Interaction (PSI) (Prisbell and Andersen, 1980; Turner, 1993; Harwood, 1999; Cohen, 2001; Caprara, 2007; Bui, 2017).

In online communities, users are more likely to share information with those they perceive as similar. This tendency can enhance interaction and foster PSI relationships among consumers. Based on this understanding, we propose the following hypotheses.

- H_1: The similarity of other users on SCPs positively affects the formation of PSI relationships

Expertise

Expertise refers to the relevant knowledge, experience, and skills a source has regarding the subject of an endorsement (Hovland & Weiss, 1951). It is defined as the degree to which a communicator is seen as a credible source of valid assertions (Erdogan *et al.*, 2001). Perceived expertise is the perception of an individual's proficiency, experience, and knowledge pertinent to decision-making (Lord & Putrevu, 2009; Magnini *et al.*, 2008).

Previous research work has found an association between expertise and its potential to affect other's opinions (Kelman (1961), McCroskey, (1966), Whitehead, (1968), Berlo *et al.* (1969) Magnini, Honeycutt & Cross, (2008), Han and Ki, (2010), Kim *et al.*, (2018), Zheng *et al.*, (2022). Hence, it is evident that users are more likely to engage with individuals who have extensive shopping knowledge, thereby increasing the platform's attractiveness. Thus, the following hypothesis is proposed:

- H_2: The expertise of other users on SCPs positively affects the formation of PSI relationships.

Likeability

A "likable" individual is described as pleasant, friendly, and easy to like (Oxford, 2017). In psychological literature, likeability is defined as forming positive initial impressions of a person, which typically lead to ongoing positive evaluations (Robbins & DeNisi, 1994). Affinity for characters is also expected to correlate with their influence. Interpersonal communication research suggests that a liked individual exerts more influence than a disliked one (Wright, 1966). Applied to media figures, this means that liked characters are likely to have a more significant impact on viewers' attitudes and behaviors compared to disliked characters. Previous research has made an effort to establish a relationship between likeability and its impact on other users' behavior (Tian & Hoffner 2010, Dibble & Rosaen 2011, Hjortaas &

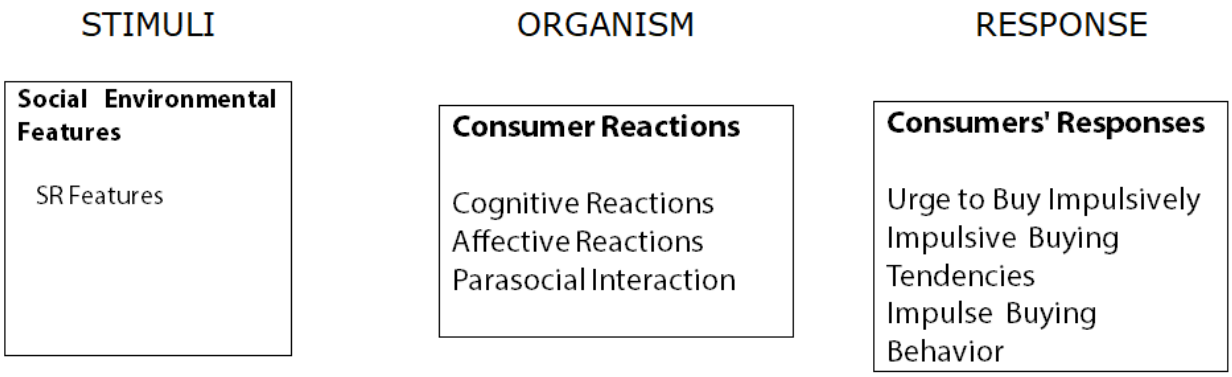


Figure 1: Theoretical framework

Overas 2018, Molin & Nordgren 2019, Sokolova & Kefi 2020) Thus, the following hypothesis is proposed:

- H_3: The likeability of other users on SCPs positively affects the formation of PSI relationships.

Relationship of Perceived Usefulness with Perceived Enjoyment

Perceived usefulness, a cognitive response, involves evaluating stimuli and information to determine actions (Parboteetah *et al.*, 2009). Holbrook and Batra (1987) found a positive relationship between cognitive and affective reactions, such as perceived enjoyment. This is further supported by Moon *et al.* (2015) and Parboteetah *et al.* (2009), showing that perceived usefulness can evoke pleasure in users. Perceived usefulness of product information on e-commerce platforms is a key precursor to customers' buying behavior (Chea *et al.*, 2008; Zheng *et al.*, 2019) and is closely related to impulse buying (Wu *et al.*, 2016).

In social commerce platforms, users who believe a platform aids their shopping activities tend to enjoy using it (Xiang *et al.*, 2016). Perceived enjoyment is the satisfaction experienced during online transactions, focusing on the website's ability to provide happiness (Moreno, 2021). Enhanced enjoyment from online shopping correlates with increased customer purchases (Childers *et al.*, 2001). Therefore, we hypothesize**:**

- H_4: The perceived usefulness of SCPs positively affects users' perceived enjoyment.

Perceived Usefulness and Urge to buy impulsively

Studies indicate that the perceived usefulness of a website significantly influences users' online activities, such as engagement, information retrieval, and purchasing decisions (Gillenson, 2002; Gefen *et al.*, 2003; Järveläinen, 2004; Van der Heijden *et al.*, 2003).

Perceived usefulness has been shown to positively affect individuals' willingness to engage in social commerce transactions (Koufaris, 2002; Hsieh & Liao, 2011; Doha *et al.*, 2019). Venkatesh and Davis (2000) and Moon and Kim (2001) reported that perceived usefulness significantly enhances trust, attitude, and behavioral intentions. Zhu *et al.* (2023) found that the perceived usefulness of online photography reviews significantly influenced viewers' travel intentions.

Recently, a positive relationship between perceived usefulness and impulse buying behavior has been established (Cuong, 2023). Therefore, this study hypothesizes that

- H_5: Users' perceived usefulness of SCPs positively affects their urge to buy impulsively on the SCP.

Relationship of Perceived Enjoyment and Urge to buy impulsively

The literature has extensively discussed the relationship between shopping satisfaction and impulsive buying behavior (Yu & Bastin, 2010; Thanh *et al.*, 2016). Baskaran *et al.* (2019) identified a significant influence of perceived enjoyment on purchase intent, a finding further supported by Karim *et al.* (2021), who demonstrated the substantial impact of perceived satisfaction on online impulsive purchases. When online shoppers find their experience enjoyable, they are likely to engage in more exploratory browsing, potentially resulting in increased unplanned purchases (Koufaris, 2002).

Enjoyment derived from the shopping experience encourages online shoppers to browse more extensively, leading to unintentional purchases (Beatty & Ferrell, 1998). Consequently, highly satisfied customers tend to shop more frequently and spend more time browsing, increasing their susceptibility to impulse buying when they encounter appealing products. Consumers perceive pleasure as a catalyst for spontaneous purchasing. . As a result, we expect to observe a comparable outcome in our research, leading us to propose the following hypothesis.

- H_6: Users' perceived enjoyment of SCPs positively affects their urge to buy impulsively on the SCP.

Relationship between Parasocial Interaction (PSI) and Perceived Enjoyment

This phenomenon often occurs when individuals frequently engage with media content featuring certain personalities,

such as television hosts, actors, social media influencers, celebrities, or informal leaders of an online community. Regular exposure allows viewers to develop emotional bonds, identify with, and show loyalty to these figures, even though they understand the relationship is one-sided and not reciprocated. This interaction creates a sense of enjoyment and happiness for the viewers. This relationship has been studied in previous studies such as Vorderer *et al.* (2004), Klimmt *et al.* (2006), Rosaen & Dibble (2017) and Stein *et al.* (2022). Therefore, we suggest the following hypothesis:

- H_7: Users' PSI with other users on SCPs positively affects their perceived enjoyment in the SCP

Effect of PSI on Impulsive Buying Tendency and Urge to buy impulsively

Research has extensively examined the influence of parasocial interaction (PSI) on consumer behavior in offline settings. Studies indicate that pseudo-social relationships formed between viewers and TV hosts or media personalities significantly impact viewers' impulse buying decisions. (Grant *et al.* 1991). Some researchers have found a positive relationship between impulse buying and parasocial interaction (PSI) among television apparel shoppers (Park & Lennon, 2004). This relationship has also been tested on social commerce platforms. Researchers such as Ngai *et al.* (2015), Xiang *et al.* (2016), and Arviansyah (2018) have posited that parasocial interactions positively impact unplanned purchases and the urge to buy impulsively, as increased interaction among users correlates with a heightened inclination toward impulse buying. Lee and Gan (2020) demonstrated that parasocial interaction is a key predictor of impulse buying tendencies. Additionally, Fu and Hsu (2023) examined the relationship between parasocial interaction with co-viewers and the urge to buy, finding it crucial for impulse buying. The following hypothesis are proposed

- H_8: Users' PSI with others positively affects their urge to buy impulsively on SCPs.
- $H_{9:}$ Users' PSI with others positively affects their Actual Impulse Buying Behavior
- H_{10}: Users' PSI with others positively affects their impulse buying tendency on SCPs.

Relationship between impulsive buying tendency (IBT), urge to buy impulsively (UBI) and actual impulse buying behavior (AIBB)

Impulsive buying tendency (IBT) refers to an individual's propensity to make unplanned, immediate, and spontaneous purchases, often driven by emotion rather than careful deliberation (Jones *et al.*, 2003; Rook & Fisher, 1995). It is defined as "a consumer's inclination to make spontaneous, unreflective, immediate, and often emotional purchases" (Rook & Fisher, 1995). This tendency varies across individuals (Rook & Fisher, 1995; Weun *et al.*, 1998) and can be influenced by personality traits, which marketers can amplify through targeted online channels (Dawson & Kim, 2010; Lin & Lin, 2005; Sun & Wu, 2011; Zhang & Shrum, 2009).

Impulsive buying behavior, distinct from IBT, is the actual act of making quick, emotionally driven purchases without evaluating alternatives thoroughly (Karbasivar & Yarahmadi, 2011). This behavior is often preceded by a sudden urge to buy, triggered by encountering a product in the environment (Beatty & Ferrell, 1998). According to the Theory of Reasoned Action, decisions are typically based on available information, with intent influencing behavior (Hale *et al.*, 2002).

Studies consistently demonstrate a link between IBT and impulsive buying behavior (Badgaiyan *et al.*, 2016; Cavazos & Máynez, 2022; Chih, 2012; Parsad *et al.*, 2017; Parsad *et al.*, 2021). Recognizing its significance, this study integrates IBT to analyze its impact on online shopping behavior, particularly on social commerce platforms (SCPs). By examining the relationship between IBT and impulsive buying behavior, the research aims to provide comprehensive insights into how antecedents influence consumer outcomes.

The following hypothesis is proposed.

- H_{11}: Users' impulse buying tendency positively affects their urge to buy impulsively on an SCP.
- H_{12}: Users' urge to buy impulsively positively affects their actual impulsive buying behavior on SCPs.
- H_{13}: Users' impulse buying tendency positively affects their actual impulsive buying behavior on SCPs.

Relationship of Gender with Impulse buying

Gender significantly affects how people shop, especially when it comes to impulse buying. Impulse buying is when people buy things suddenly without thinking about it much. The studies listed below show how men and women differ in their impulse-buying habits: (Table 1):

- H_{14}-: Gender has a moderating effect on Impulse Buying Behavior

Justification

This research aims to help marketers in the retail industry boost sales and profitability by encouraging impulse buying through gender-based marketing strategies. Men and women have distinct shopping behaviors, so marketers should tailor their strategies accordingly (Chun *et al.*, 2020). Moreover, it will help to provide important insight into the aspect of the impact of PSI on impulse buying behavior. It would help the online seller to consider the importance of endorsements, expert opinions &reviews and their impact on online shoppers. Additionally, this study provides theoretical contributions for academics by developing a theory that explains how impulse buying tendencies, both directly and indirectly, influence impulse buying through the urge to buy, considering the gender of retail customers.

Research Methodology

Sample size

Sample size refers to the number of elements included in a study. In behavioral sciences, statistical tests are routinely applied, but their accuracy heavily depends on the statistical power or the sample size. Without an accurately selected sample, statistical tests can produce nonsignificant results. This can happen when the null hypothesis (H0) is true but is incorrectly rejected or when the alternative hypothesis (H1) is true but the sample size is too small to detect deviations from the null hypothesis. Selecting a logical sample size is often considered complex, but GPower software (Faul *et al.*, 2007, 2009) simplifies various types of power analysis. This study used GPower to select a sample size at a 95% confidence level with ten independent variables, resulting in a minimum sample size of 218 (Figure 2).

Data Collection

The research work will be based mainly on primary data collected from respondents under the study. The survey method will be used to collect primary data in the area of Punjab and U.T. of Chandigarh as in Northern India, Internet Subscribers per 100 population in Punjab and Chandigarh are highest at the end of Sep-23 (DOT-TRAI 2024). A well-structured questionnaire was prepared, including a Seven-point Likert scale d to collect responses where 1= Strongly Disagree and 7=Strongly Agree. The survey items were adapted from various sources. It was uploaded on Qualtrics (survey software), and the survey link was shared with respondents via social media platforms, including Facebook, Twitter, LinkedIn, Instagram and, YouTube and WhatsApp. The survey's sample selection was managed with an online screening question asking participants, "Have you ever shopped on a Social Media Platform without planning?" Those who did not meet this criterion were automatically screened out. Potential respondents were randomly selected and received email invitations with an anonymous survey link, informing them that the data collected would be used solely for research purposes. Around 1048 people were sent the survey. Out of that, 639 people responded. The data was examined and analyzed for missing values, duplicate responses and neutral responses. Such responses were omitted and final data of 428 was considered for further examination. It was comprised of 233 women and 195 men. Smart-PLS (version 4) was used to conduct the structural equation modeling (SEM) and multigroup analysis (MGA) for testing our hypotheses. Partial least squares structural equation modeling (PLS-SEM) is highly flexible and suitable for complex research models that include both formative and reflective constructs (Hair *et al.*, 2019; Lowry & Gaskin, 2014). Given its advantages, PLS-SEM was chosen as the appropriate measurement tool for this study.

Results

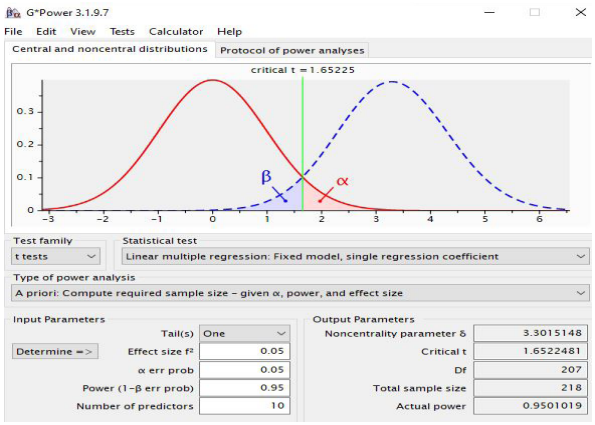
This study has used a three-step approach to evaluate the model for both males and females using PLS-SEM and has compared the results. These three steps for examining the results were assessing measurement models and structural models and conducting a multigroup analysis (Hair *et al.*, 2019).

Measurement Model

Anderson and Gerbing(1988) have suggested a two-step approach for determining the suitability of Structural equation modeling. Initially, we assessed Cronbach's alpha (CA) and composite reliability (CR) to ensure internal consistency, aiming for values above 0.70 for all constructs (see Table 2). The exception was likeability (L), which showed a lower CA value but an acceptable CR and AVE value. This approach was feasible as the CR values for all eleven constructs exceeded the average threshold. After analyzing reliability, we assessed convergent validity using the average variance extracted (AVE), which was greater than

Table 1: Literature review

Authors	*Findings*
Dittmar *et al.* (1995).	Men tend to buy fun or leisure items on impulse, while women often prefer to buy things that have symbolic meaning and help them express themselves, especially items related to their appearance and emotional satisfaction.
Wood (1998) and Hausman (2000)	Gender and buying on impulse have weak correlation.
(Verplanken *et al.*, 2005)	women tend to make more impulsive purchases compared to men as they consider it will boost their mental well being
Tariq (2009)	The tendency for impulsive buying is gender-specific, with women showing a significantly higher inclination for impulse purchases compared to men.
Sigal & Ram (2012)	women are more likely to engage in impulsive buying because it is linked to pleasure-seeking behavior. Women tend to be more inclined toward hedonic consumption than men.
Ozdemir and Akcay (2019	Feminine gender identity has been found to have a significant and positive effect on consumer impulse buying behavior compared to masculine gender identity.



Source-: Faul *et al.* 2007, 2009

Figure 2: Minimum sample size

0.5 in all cases (Fornell & Larcker, 1981). Thus, all AVE values exceeded the 0.5 threshold. Hence, internal consistency and convergent validity is established for both males and females (Figure 3).

Model under study

Regarding the analysis of discriminant validity, the Fornell–Larcker criterion results indicate a satisfactory level for both males (see Table 3) and females (see Table 4). Henseler *et al.* (2015) also suggest evaluating the Heterotrait–Monotrait (HTMT) ratio, which measures Heterotrait–Monotrait correlations. Discriminant validity is confirmed when HTMT values are below 0.90 (Hair *et al.*, 2019) (Tables 5 and 6). In this study, all latent variables estimated are below these thresholds, providing sufficient evidence of reliability convergent and discriminant validity for both groups.

Common Method Bias

The questionnaire was designed following the guidance of Podsakoff *et al.* (2003) to avoid common method bias (CMB). The variance inflation factor (VIF) values specified no multicollinearity or CMB issues in our model (Table 7), as each independent variable had a VIF value less than 3.3, which is the threshold for common method bias (Petter *et al.*, 2007). For further verification, we followed Kock (2015) and tested all constructs against each other in Smart-PLS. Since all items in our study were reflective, we found that each construct had a VIF value below 3.3, suggesting that common method bias was not an issue. This validation allowed us to proceed with further analyses.

R-squared statistics show how much of the variation in the dependent variable can be explained by the independent variables. In simple terms, it measures how well the independent variables together explain the changes in the dependent variable. Table 8 presents the R^2 value of the dependent construct as 0.606 and the adjusted R^2 value at 0.603 for the complete model. The same values for males are

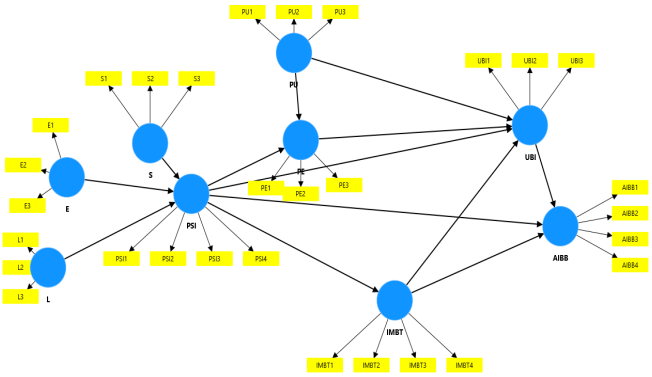


Figure 3: Research model

0.544 and 0.537 and for females, 0.680 and 0.675. It is clear that the explanatory capacity of the model under study is more for females as compared to males. An R^2 value of more than 0.5 is considered relatively high and acceptable by behavioral research standards (Hair *et al.*, 2017).

Measurement of Structural Model

First, the complete structural model was assessed (see Table 9). After confirming the model's predictive relevance, we moved to the second stage, where we evaluated the structural models for males and females. The VIF values of complete models are less than 3.3 (Hair *et al.*,2019), which indicates an absence of multicollinearity and ensures that the model is free from bias.

Analysis of the structural model as per Table 9 shows that in the complete model out of 13 hypotheses 10 were accepted, including expertise leads to para social interaction (β = .264, t = 5.716 & *p* = .0), impulse buying tendencies leads to urge to buy impulsively (β = .204, t = 6.503 & *p* =.0), likeability leads to parasocial interaction (β = .496, t = 12.397 & *p* = 0), perceived enjoyment leads to urge to buy impulsively (β =.105, t = 2.146 & *p* = 0.03), parasocial interaction leads to actual impulse buying behavior (β =.445, t = 9.45 & *p* = .0), impulse buying tendencies (β =.396, t=7.952 & *p* = 0), urge to buy impulsively (β = 0.583, t = 12.949 & *p* = .0) and perceived enjoyment (β = 0.643, t = 21.062 & *p* = .0). Finally, urge to buy impulsively leads to actual impulse buying behavior (β =.352, t = 6.67 & *p* = .0) (Table 10).

Multi Group Analysis (MGA) for Moderation Effects of Gender

Previous studies show that gender affects how people make impulsive online purchases. Researchers looked at how gender influences impulse buying on Social Commerce Platforms (SCPs). The sample of 428 people is segregated into two groups: 233 women and 195 men. This sample size is large enough to detect differences between the groups, according to methods by Kock and Hadaya (2018) and Becker *et al.* (2013). The study also removed any survey responses that were too uniform, as suggested by Hair *et al.* (2019) (Table 11).

Table 2: Measurement Model Evaluation Constructs and Metrics (Male vs. Female)

Construct	*Cronbach's alpha*	*Composite reliability (rho_a)*	*Composite reliability (rho_c)*	*AVE*
AIBB	0.756 (M), 0.815 (F)	0.769 (M), 0.818 (F)	0.844 (M), 0.878 (F)	0.576 (M), 0.644 (F)
E	0.788 (M), 0.906 (F)	0.810 (M), 0.909 (F)	0.876 (M), 0.941 (F)	0.703 (M), 0.842 (F)
IMBT	0.809 (M), 0.838 (F)	0.819 (M), 0.847 (F)	0.874 (M), 0.891 (F)	0.634 (M), 0.672 (F)
L	0.687 (M), 0.680 (F)	0.695 (M), 0.691 (F)	0.827 (M), 0.823 (F)	0.615 (M), 0.608 (F)
PE	0.749 (M), 0.790 (F)	0.762 (M), 0.811 (F)	0.856 (M), 0.877 (F)	0.666 (M), 0.706 (F)
PSI	0.776 (M), 0.833 (F)	0.778 (M), 0.834 (F)	0.856 (M), 0.889 (F)	0.598 (M), 0.666 (F)
PU	0.783 (M), 0.772 (F)	0.804 (M), 0.778 (F)	0.873 (M), 0.868 (F)	0.696 (M), 0.688 (F)
S	0.798 (M), 0.739 (F)	0.891 (M), 0.770 (F)	0.876 (M), 0.850 (F)	0.703 (M), 0.655 (F)
UBI	0.770 (M), 0.806 (F)	0.771 (M), 0.806 (F)	0.867 (M), 0.886 (F)	0.685 (M), 0.721 (F)

Table 3: Measurement model: Discriminant validity - Fornell Larcker Criterion (Males)

	AIBB	*E*	*IMBT*	*L*	*PE*	*PSI*	*PU*	*S*	***UBI***
AIBB	0.759								
E	0.268	0.839							
IMBT	0.327	0.354	0.797						
L	0.523	0.181	0.388	0.784					
PE	0.589	0.163	0.224	0.5	0.816				
PSI	0.719	0.266	0.343	0.606	0.71	0.773			
PU	0.373	0.066	0.079	0.216	0.462	0.332	0.831		
S	0.271	0.286	0.506	0.309	0.16	0.272	-0.029	0.838	
UBI	0.598	0.397	0.344	0.558	0.533	0.677	0.2	0.276	0.828

Table 4: Heterotrait monotrait ratio (HTMT) (Males)

	AIBB	*E*	*IMBT*	*L*	*PE*	*PSI*	*PU*	*S*	*UBI*
AIBB									
E	0.346								
IMBT	0.424	0.434							
L	0.716	0.269	0.517						
PE	0.763	0.215	0.278	0.687					
PSI	0.889	0.333	0.423	0.822	.891				
PU	0.467	0.204	0.129	0.276	0.573	0.409			
S	0.326	0.356	0.616	0.432	0.190	0.319	0.150		
UBI	0.764	0.505	0.435	0.765	0.698	0.874	0.233	0.350	

To follow the MICOM procedure, we used the same indicators for both groups to ensure reliability and validity. We handled missing values in the same way and used the same PLSPM algorithm settings, including path weighting, which helped establish configural invariance. Calculating MICOM in Smart PLS confirmed this (Step 1).

In Step 2, we compared the correlation between the composite scores of males and females with the 5% quantile. The quantile was smaller than or equal to the correlation for all constructs. Permutation *p-values* greater than 0.05 showed that the correlation wasn't significantly lower than one. This met the criteria for compositional invariance, as shown in the figure. Therefore, Step 2 supported partial measurement invariance, allowing us to confidently compare standardized path coefficients across groups using MGA in PLSPM (Tables 12 and 13).

Table 5: Measurement model: discriminant validity - Fornell Larcker Criterion (Females)

	AIBB	E	IMBT	L	PE	PSI	PU	S	UBI
AIBB	0.802								
E	0.622	0.918							
IMBT	0.468	0.56	0.82						
L	0.629	0.411	0.391	0.78					
PE	0.565	0.4	0.31	0.417	0.84				
PSI	0.748	0.534	0.442	0.588	0.759	0.816			
PU	0.433	0.31	0.135	0.323	0.533	0.481	0.829		
S	0.425	0.425	0.495	0.416	0.232	0.37	0.104	0.809	
UBI	0.795	0.641	0.541	0.546	0.612	0.767	0.375	0.465	0.849

Table 6: Heterotrait Monotrait Ratio (HTMT) (Females)

	AIBB	*E*	*IMBT*	*L*	*PE*	*PSI*	*PU*	*S*	*UBI*
AIBB									
E	0.722								
IMBT	0.557	0.646							
L	0.835	0.517	0.51						
PE	0.699	0.469	0.37	0.551					
PSI	0.895	0.613	0.523	0.776	0.899				
PU	0.544	0.367	0.162	0.429	0.671	0.59			
S	0.54	0.508	0.614	0.592	0.292	0.462	0.136		
UBI	0.889	0.75	0.656	0.73	0.764	0.895	0.472	0.586	

Table 7: Collinearity statistics (VIF)

	Complete sample	*Males*	*Females*
E -> PSI	1.205	1.1	1.328
IMBT -> AIBB	1.282	1.164	1.418
IMBT -> UBI	1.193	1.135	1.256
L -> PSI	1.209	1.117	1.315
PE -> UBI	2.453	2.283	2.581
PSI -> AIBB	2.182	1.896	2.434
PSI -> IMBT	1	1	1
PSI -> PE	1.213	1.123	1.3
PSI -> UBI	2.463	2.173	2.722
PU -> PE	1.213	1.123	1.3
PU -> UBI	1.350	1.273	1.436
S -> PSI	1.254	1.177	1.335
UBI -> AIBB	2.335	1.898	2.768

Additionally, to check if full measurement invariance was achieved in step 3a, we compared the mean values and variances of the constructs across males and females. We looked at the first column (mean original difference) and ensured that each construct's value fell within the 95% confidence interval. This involved comparing the mean original difference to the lower and upper boundaries shown in columns four and five. If the mean original difference was within these boundaries, it indicated that the means were not different. The permutation *p-value* for all the constructs is more than .005, indicating that the null hypothesis that there is no difference in means of male and female is accepted.

The subsequent columns displayed the results of composite variances (step 3b), interpreted similarly to mean differences. Again, for all the constructs original difference for variance is with in upper and lower boundaries. Moreover, the permutation *p-value* for all the constructs exhibited a value of more than .05, accepting the null hypothesis that the variances of two males and females are the same. Since the results for Step III indicated that all composite mean values and variances were equal, full measurement invariance was established (Table 14).

Table 8: Models explanatory power (R Square)

	Complete		*Males*		*Females*	
Construct	*R-square*	*R-square adjusted*	*R-square*	*R-square adjusted*	*R-square*	*R-square adjusted*
AIBB	0.606	0.603	0.544	0.537	0.680	0.675
IMBT	0.157	0.155	0.117	0.113	0.196	0.192
PE	0.592	0.590	0.562	0.557	0.612	0.609
PSI	0.427	0.423	0.395	0.385	0.451	0.443
UBI	0.542	0.539	0.482	0.471	0.642	0.636

Table 9: Complete model without gender difference

		Confidence Interval						
	Path coefficients	*2.50%*	*97.50%*	*T statistics*	*P values*	*f-square*	*VIF*	*Results*
E -> PSI	0.264	0.171	0.352	5.716	.0	0.101	1.205	Supported
IMBT -> AIBB	0.072	0	0.144	1.958	0.050	0.01	1.282	Not Supported
IMBT -> UBI	0.204	0.141	0.265	6.503	.0	0.082	1.193	Supported
L -> PSI	0.496	0.416	0.572	12.397	.0	0.355	1.209	Supported
PE -> UBI	0.105	0.01	0.201	2.146	0.033	0.01	2.453	Supported
PSI -> AIBB	0.445	0.351	0.535	9.457	.0	0.231	2.182	Supported
PSI -> IMBT	0.396	0.292	0.488	7.952	.0	0.186	1	Supported
PSI -> PE	0.643	0.582	0.699	21.060	.0	0.835	1.213	Supported
PSI -> UBI	0.583	0.493	0.672	12.949	.0	0.326	2.463	Supported
PU -> PE	0.232	0.165	0.296	6.925	.0	0.109	1.213	Supported
PU -> UBI	-0.020	-0.101	0.055	0.502	0.615	0.001	1.350	Not Supported
S -> PSI	0.048	-0.026	0.125	1.238	0.216	0.003	1.254	Not Supported
UBI -> AIBB	0.352	0.246	0.455	6.67	.0	0.134	2.335	Supported

Table 10: Model Fit

	Complete Sample		*Males*		*Females*				
	Saturated model	*Estimated model*	*Saturated model*	*Estimated model*	*Saturated model*	*Estimated model*	*Standard Values*	*Decision*	*Citation*
SRMR	0.061	0.100	0.075	0.105	0.064	0.104	≤.08	Accepted	Henseler *et al.*, (2014)
d_ULS	1.720	4.624	2.634	5.145	1.882	5.043	Values must be significantly different from Zero	Accepted	Dijkstra and Henseler (2015)
d_G	0.648	0.785	0.882	1.014	0.830	1.006	Values must be significantly different from Zero	Accepted	Dijkstra and Henseler (2015)
Chi-square	1626.454	1825.334	995.858	1085.818	1106.192	1230.720	Test should not be significant	Accepted	Dijkstra & Henseler (2015)
NFI	0.755	0.725	0.655	0.624	0.741	0.712	≥ 0.95	Rejected	Bentler & Bonett (1980), Lohmöller (1989)

Table 11: Configural & compositional invariance

	Step 1 Configural invariance	*Step 2 Compositional Invariance*				
Construct	*(Same Indicator, Data Treatment & algorithms for both groups)*	*Original correlation c*	*Correlation permutation mean*	*5.00%*	*Permutation p-value*	*Partial measurement invariance established*
AIBB	Yes	1	0.997	0.988	0.914	Yes
E	Yes	1	0.973	0.876	0.873	Yes
IFT	Yes	0.989	0.996	0.989	0.055	Yes
IMBT	Yes	0.999	0.982	0.938	0.891	Yes
L	Yes	0.998	0.992	0.973	0.771	Yes
PE	Yes	1	0.997	0.991	0.929	Yes
PSI	Yes	1	0.999	0.996	0.956	Yes
PU	Yes	1	0.996	0.989	0.986	Yes
S	Yes	0.972	0.952	0.76	0.265	Yes
UBI	Yes	0.997	0.999	0.995	0.143	Yes
VA	Yes	1	0.996	0.986	0.998	Yes

Table 12: MICOM Step 3a

	Mean Invariance					
	Equal Mean Assessment					
Construct	*Original difference*	*Permutation mean difference*	*5.00%*	*95.00%*	*Permutation p-value*	*Equal*
AIBB	0.175	-0.005	-0.29	0.275	0.141	Yes
E	0.308	-0.006	-0.279	0.301	0.265	Yes
IFT	0.168	0.005	-0.267	0.274	0.167	Yes
IMBT	0.08	-0.013	-0.282	0.25	0.284	Yes
L	0.153	-0.003	-0.283	0.29	0.19	Yes
PE	0.467	-0.005	-0.288	0.282	0.4	Yes
PSI	0.16	-0.006	-0.29	0.277	0.163	Yes
PU	0.133	0.013	-0.277	0.308	0.25	Yes
S	-0.115	0	-0.297	0.294	0.258	Yes
UBI	0.334	-0.007	-0.283	0.287	0.25	Yes
VA	0.015	0.003	-0.265	0.292	0.459	Yes

Table 13: Step 3b

Equal Variance Assessment							
Construct	*Original difference*	*Permutation mean difference*	*5.00%*	*95.00%*	*Permutation p-value*	*Equal*	*Full measurement invariance established*
AIBB	0.21	0.006	-0.24	0.268	0.106	Yes	Yes
E	0.193	0.017	-0.415	0.434	0.251	Yes	Yes
IFT	0.063	0.005	-0.201	0.227	0.328	Yes	Yes
IMBT	0.178	0.001	-0.246	0.244	0.121	Yes	Yes
L	0.025	0.001	-0.185	0.184	0.41	Yes	Yes
PE	-0.043	0.005	-0.218	0.234	0.358	Yes	Yes
PSI	0.22	0.004	-0.229	0.24	0.067	Yes	Yes
PU	0.165	0.007	-0.228	0.232	0.119	Yes	Yes
S	0.154	0.002	-0.194	0.19	0.091	Yes	Yes
UBI	0.247	0.01	-0.26	0.28	0.077	Yes	Yes
VA	0.245	-0.007	-0.238	0.204	0.27	Yes	Yes

Table 14: Structural model with gender difference

	Bootstrap MGA		*Parametric test*		*Welch-Satterthwaithe Test*		
Constructs	*Difference (Male-Female)*	*2-tailed (Male vs Female) p value*	*T Value (Male-Female)*	*p-value (Male-Female)*	*T Value (Male-Female)*	*p-value (Male-Female)*	*Hypothesis*
E -> PSI	-0.157	0.388	0.953	0.341	0.861	0.395	No
IFT -> PE	-0.228	0.176	1.482	0.139	1.411	0.166	No
IFT -> PU	0.162	0.393	1.044	0.297	0.88	0.385	No
IMBT -> AIBB	0.005	0.962	0.038	0.969	0.042	0.967	No
IMBT -> UBI	-0.03	0.757	0.259	0.795	0.276	0.784	No
L -> PSI	0.275	0.132	1.902	0.058	1.466	0.151	No
PE -> UBI	0.048	0.699	0.263	0.793	0.353	0.726	No
PSI -> AIBB	-0.18	0.017	2.672	0.028	2.497	0.020	Yes
PSI -> IMBT	-0.176	0.211	0.983	0.326	1.311	0.197	No
PSI -> PE	0.116	0.443	0.965	0.335	0.755	0.455	No
PSI -> UBI	0.011	0.956	0.068	0.946	0.07	0.945	No
PU -> PE	0.509	0.001	3.41	0.001	3.859	0	Yes
PU -> UBI	-0.16	0.231	1.092	0.276	1.193	0.24	No
S -> PSI	-0.112	0.561	0.765	0.445	0.565	0.576	No
UBI -> AIBB	-0.27	0.048	1.439	0.151	2.046	0.047	Yes
VA -> PE	-0.203	0.221	1.389	0.165	1.179	0.246	No
VA -> PU	-0.151	0.417	0.944	0.346	0.819	0.418	No

We analyzed the moderation effects using partial least square structural equation modeling (PLS-SEM) and applied three tests: PLS multigroup analysis (PLS-MGA; one-tailed), the parametric test (two-tailed), and the Welch-Satterthwaite test. These tests checked for significant differences in impulse buying behavior between males and females.

The PLS-MGA results showed that gender does not generally act as a moderator for impulse buying behavior, except in three cases:

Impact of Para Social Interaction (PSI) on Actual Impulse Buying Behavior AIBB

For females PSI has shown a greater impact on actual impulse buying behavior as compared to males. This was shown by PLS-MGA (β = -0.18, p = 0.017), parametric test (T Value = 2.672, $p = 0.028$) and Welch-Satterthwaite test (T = 2.497, $p = 0.20$).

The impact of Perceived Usefulness (PU) on Perceived Enjoyment (PE)

For males, PU has a greater impact on PE compared to females. This was shown by PLS-MGA (β = 0.509, $p = 0.001$), Parametric test (T-value = 3.41, $p = 0.001$) and Welch-Satterthwaite test (T = 3.859, $p = 0.000$).

The impact of Urge to Buy Impulsively (UBI) on Actual Impulse Buying Behavior (AIBB)

For females, UBI leads to more impulse buying behavior compared to males. This was shown by PLS-MGA (β = -0.27, $p = 0.048$), and Welch-Satterthwaite test (T = 2.046, $p = 0.047$). These findings align with previous studies like Tifferet & Herstein (2012), Zia *et al.* (2018), and Ozdemir & Akcay (2019). No significant differences were observed for other constructs.

Conclusion

The main objective of this study was to identify significant differences in the relationship between parasocial interaction and online impulse-buying behavior between males and females. To achieve this, the PLS-SEM analysis technique, specifically MICOM analysis, was used. Before the model was evaluated for gender differences, both males and females were examined for consistency, reliability, and validity. Once each one of them was confirmed, the structural evaluation of the complete model was conducted without any gender difference. The results showed that out of 13 hypotheses, ten were accepted. These include findings that expertise leads to parasocial interaction, impulse buying tendencies lead to the urge to buy impulsively, and likability leads to

parasocial interaction. Additionally, perceived enjoyment leads to the urge to buy impulsively, parasocial interaction leads to actual impulse buying behavior, and perceived enjoyment, impulse buying tendencies, and the urge to buy impulsively all significantly influence actual impulse buying behavior. Finally, the urge to buy impulsively was found to lead to actual impulse buying behavior.

Then multi-group analysis, as provided in PLS-SEM, was conducted by dividing the whole data into two groups of males and females. The results indicated that for females, parasocial interaction (PSI) has a greater impact on actual impulse buying behavior compared to males. For males, perceived usefulness (PU) has a greater impact on perceived enjoyment (PE) than it does for females. Additionally, for females, user-brand interaction (UBI) leads to more impulse buying behavior compared to males. These findings are consistent with previous studies by Tifferet & Herstein (2012), Zia *et al.* (2018), and Ozdemir & Akcay (2019). No significant differences were observed for other constructs.

Limitations of the study

This study has some limitations. It used a cross-sectional design with non-probabilistic sampling and focused on only two groups. The subsamples for the multigroup analyses were also relatively small, limiting the ability to generalize the findings. Future research should test the model with more than two groups and explore impulse buying in new social commerce models across different platforms, including mobile apps. Adding age, income, profession, and marital status would also be beneficial for conducting MGA in detail.

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Conflict of Interest

We hereby declare that we have no conflicts of interest, whether financial, personal, or professional, that could have influenced the research, analysis, or interpretation of the findings in this document. There are no competing interests or relationships with any individuals or organizations that could be seen as affecting the content of this work. All authors have reviewed and approved the final version of the manuscript and consent to its submission. This declaration is made to uphold the ethical standards of publication and ensure transparency and integrity in research.

References

Adelaar, T., Chang, S., Lancendorfer, K. M., Lee, B., and Morimoto, M. (2003). Effects of media formats on emotions and impulse buying intent. Journal of Information Technology, 18(4), 247-266.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. Psychological bulletin, 103(3), 411.

Arviansyah, Dhaneswara, A. P., Hidayanto, A. N., & Zhu, Y. Q. (2018). Vlogging: Trigger to Impulse Buying Behaviors. PACIS, 249.

Assadam, E. (2020). Online impulse buying: who had suggested you to buy on instagram. MEC-J (Management and Economics Journal), 3(3), 231-244.

Badgaiyan, A. J., Verma, A., & Dixit, S. (2016). Impulsive buying tendency: Measuring important relationships with a new perspective and an indigenous scale. IIMB Management Review, 28(4), 186–199. doi:10.1016/j.iimb.2016.08.009

Ballantine, P. W., and Martin, B. A. (2005). Forming parasocial relationships in online communities. ACR North American Advances.

Baskaran, S., Yuen, T. M., Mahmood, Z., Mahadi, N., & Dalayga, B. (2019). Do Women Buy Online Impulsively More Often Out of Enjoyment and Risk Tolerance? International Journal of Academic Research in Business and Social Sciences, 9, 88-107.

Beatty, S. E. and Ferrell M. E. (1998), "Impulsive Buying: Modeling Its Precursors", Journal of Retailing Vol. 74 No. 2, pp. 169–191

Becker, J. M., Rai, A., Ringle, C. M., & Völckner, F., (2013)., "Discovering unobserved heterogeneity in structural equation models to avert validity threats", MIS Quarterly,vol. 37, no. 3, pp. 665-694.

Bentler, P. M., & Bonett, D. G. (1980). Significance Tests and Goodness-of-Fit in the Analysis of Covariance Structures, Psychological Bulletin, 88: 588-600.

Berlo, D.K., Lemert, J.B. and Mertz, R.J. (1969) 'Dimensions for Evaluating the Acceptability of Message Sources', Public Opinion Quarterly 33(Winter): 563–76.

Bressolles, G., Durrieu, F., and Giraud, M. (2007). The impact of electronic service quality's dimensions on customer satisfaction and buying impulse. Journal of Customer Behavior, 6(1), 37-56.

Bui, N. H. (2017). Exploring similarity characteristics, identification, and parasocial interactions in choice of celebrities. Psychology of popular media culture, 6(1), 21.

Caprara, G. V., Vecchione, M., Barbaranelli, C., & Fraley, R. C. (2007). When likeness goes with liking: The case of political preference. Political Psychology, 28, 609 – 632. http://dx.doi.org/10.1111/j.1467-9221.2007.00592.x

Cavazos-Arroyo, J., & Máynez-Guaderrama, A. I. (2022). Antecedents of online impulse buying: An analysis of gender and centennials' and millennials' perspectives. Journal of theoretical and applied electronic commerce research, 17(1), 122-137.

Chan, T. K., Cheung, C. M., and Lee, Z. W. (2017). The state of online impulse-buying research: A literature analysis. Information and Management, 54(2), 204-217.

Chea, S.; Luo, M. M.(2008), Post-adoption behaviors of e-service customers: The interplay of cognition and emotion.

International Journal of Electronic Commerce. Volume, 12, pp. 29–56.

Chih, W.-H., Wu, C. H.-J., & Li, H.-J. (2012). The Antecedents of Consumer Online Buying Impulsiveness on a Travel Website: Individual Internal Factor Perspectives. Journal of Travel & Tourism Marketing, 29(5), 430–443. doi:10.1080/10548408.2012.691393

Childers, T. L., Carr, C. L., Peck, J., & Carson, S. (2001). Hedonic and Utilitarian Motivations for Online Retail Shopping Behavior. Journal of Retailing, 77, 511-535.

Chun, T. Y., Lee, D. K., & Park, N. H. (2020). The Effect of Marketing Activities on the Brand Recognition , Brand Familiarity , and Purchase Intention on the SNS of Franchise

Companies. 7(11), 955–966. https://doi.org/10.13106/jafeb.2020.vol7.no11.955

Cohen, J. (2001). Defining identification: A theoretical look at identification of audiences with media characters. Mass Communication & Society, 4, 245-264.

Cuong, D. T. (2023). Online Impulsive Buying Behavior Using Partial Least Squares Algorithm. Journal of ICT Standardization, 11(3), 217-236

Dawson, S., & Kim, M. (2010). Cues on apparel web sites that trigger impulse purchases. Journal of Fashion Marketing and Management: An International Journal, 14(2), 230-246.

Dibble, J. L., & Rosaen, S. F. (2011). Parasocial interaction as more than friendship: Evidence for parasocial interactions with disliked media figures. Journal of Media Psychology, 23, 122–132. doi:10.1027/1864-1105/a000044

Dijkstra, T. K. and Henseler, J. (2015). Consistent and Asymptotically Normal PLS Estimators for Linear Structural Equations, Computational Statistics & Data Analysis, 81(1): 10-23.

Dittmar, Helga, Beattie, Jane, & Friese, Susanne. (1995). "Gender identity and material symbols: Objects and decision considerations in impulse purchases", Journal of Economic Psychology, Vol. 16, pp. 491–511

Doha, A., Elnahla, N., & McShane, L. (2019). Social commerce as social networking. Journal of Retailing and Consumer Services, 47, 307-321.

Erdogan, B.Z., Baker, M.J. and Tagg, S. (2001) 'Selecting Celebrity Endorses: The Practitioner's Perspective', Journal of Advertising Research 41(3): 39–48.

Eroglu, S. A., Machleit, K. A., and Davis, L. M. (2001). Atmospheric qualities of online retailing: A conceptual model and implications. Journal of Business research, 54(2), 177-184.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behavior Research Methods, 39, 175-191.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. Behavior Research Methods, 41, 1149-1160.

Fiske, S. T. (2014). Social beings: Core motives in social psychology. Hoboken, NJ: Wiley.

Fu, J. R., & Hsu, C. W. (2023). Live-streaming shopping: the impacts of parasocial interaction and local presence on impulse buying through shopping value. Industrial Management & Data Systems, 123(7), 1861-1886.

Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", Journal of Marketing Research, Vol. 18 No. 1, pp. 39-50

Fu, S., Xu, Y., and Yan, Q. (2019). Enhancing the parasocial interaction relationship between consumers through similarity effects in the context of social commerce: Evidence from social commerce platforms in China. Journal of Strategic Marketing, 27(2), 100-118.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. MIS quarterly, 51-90.

Gillenson, M. L., & Sherrell, D. L. (2002). Enticing online consumers: an extended technology acceptance perspective. Information & management, 39(8), 705-719.

Grant, A. E., Guthrie, K. K., & Ball-Rokeach, S. J. (1991). Television shopping: A media system dependency perspective. Communication Research, 18(6), 773-798.

Hair, J.F., Sarstedt, M., Ringle, C.M. and Gudergan, S.P. (2017), Advanced Issues in Partial Least Squares Structural Equation Modeling, SAGE Publications, Thousand Oaks, CA

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European business review, 31(1), 2-24

Hajli, N. (2014). A study of the impact of social media on consumers. International Journal of Market Research, 56(3), 387-404.

Hajli, N. (2015). Social commerce constructs and consumer's intention to buy. International Journal of Information Management, 35(2), 183-191.

Hale, J. L., Householder, B. J., & Greene, K. L. (2002). The theory of reasoned action. The persuasion handbook: Developments in theory and practice, 14(2002), 259-286.

Han,E., and Ki, E.(2010) Developing a measure of celebrity reputation, Public Relations Review 36(2) 199–201

Harwood, J. (1999). Age identification, social identity gratifications, and television viewing. Journal of Broadcasting and Electronic Media, 43,123–136. http://dx.doi.org/10.1080/08838159909364479

Hashmi, H., Attiq, S., & Rasheed, F. (2019). Factors Affecting Online Impulsive Buying Behavior: A Stimulus Organism Response Model Approach. Market Forces, 14(1).

Hausman, Angela (2000), "A multi-method investigation of consumer motivations in impulse buying behavior", Journal of consumer marketing, Vol. 17 No. 5

Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., ... & Calantone, R. J. (2014). Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013). Organizational research methods, 17(2), 182-209.

Henseler, J., Ringle, C.M. and Sarstedt, M. (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modeling", Journal of the Academy of Marketing Science, Vol. 43 No. 1, pp. 115-135.

Hjortaas, A. E., & Overas, R. D. (2018). Increasing the Effectiveness of Influencer Marketing: Applying Parasocial Interaction and Cialdini's Principles of Persuasion (Master's thesis, Handelshoyskolen BI).

Hoerner, J. (1999). Scaling the web: a parasocial interaction scale for world wide web sites. Advertising and the world wide web, 99(7), 135-147.

Holbrook, M. B., & Batra, R. (1987). Assessing the role of emotions as mediators of consumer responses to advertising. Journal of consumer research, 14(3), 404-420.

Horton, D., and Richard Wohl, R. (1956). Mass communication

and parasocial interaction: Observations on intimacy at a distance. Psychiatry, 19(3), 215-229.

Hovland, C. I., & Weiss, W. (1951). The influence of source credibility on communication effectiveness. Public Opinion Quarterly, 15, 635–650

Invest India (2019). India - The Top Retail Destination. Investindia.gov.in, December 05, Retrieved Jan 03, 2022 from https://www.investindia.gov.in/sector/retail-e-commerce Accessed 02 Jan 2022.

Järveläinen, J. (2004). Perceived Usefulness and Ease-Of-Use Items in B2C Electronic Commerce: Findings from an Analysis of Web-based Qualitative Data. In Building the E-Service Society: E-Commerce, E-Business, and E-Government (pp. 475-489). Springer US.

Jones, Michael A., Kristy E. Reynolds, Seungoog Weun, and Sharon E. Beatty, (2003). The product-specific nature of impulse buying tendency. Journal of Business Research, Vol. 56 , No. 7, pp. 505-11.

Karbasivar, A., & Yarahmadi, H. (2011). Evaluating effective factors on consumer impulse buying behavior. Asian Journal of Business Management Studies, 2(4), 174-181.

Karim, W., Chowdhury, M., Masud, A., & Arifuzzaman (2021). Analysis of Factors Influencing Impulse Buying Behavior towards e-Tailing Sites. Contemporary Management Research, 17, 97-126. https://doi.org/10.7903/cmr.20457

Kelman, H. C. (1961). American Association for Public Opinion Research. The Public Opinion Quarterly, 25(1), 57-78.

Kim SS, Choe JYJ, Petrick JF. The effect of celebrity on brand awareness, perceived quality, brand image, brand loyalty, and destination attachment to a literary festival. J Dest Mark Manage. 2018;9:320–329

Kim, S., and Park, H. (2013). Effects of various characteristics of social commerce (s-commerce) on consumers' trust and trust performance. International Journal of Information Management, 33(2), 318-332.

Klimmt, C., Hartmann, T., & Schramm, H. (2006). Parasocial interactions and relationships. In J. Bryant, & P. Vorderer (Eds.), Psychology of entertainment (pp.662–714). Mahwah, NJ: Lawrence Erlbaum Associates.

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. International Journal of e-Collaboration, 11(4), 1–10. https://doi.org/10.4018/ijec.2015100101

Kock, N., & Hadaya, P., (2018). "Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods", Information Systems Journal, vol. 28, no. 1, pp. 227-261

Koufaris, M. (2002). Applying the technology acceptance model and flow theory to online consumer behavior. Inform. Systems Res.13(2) 205–223.

Labrecque, L. I. (2014). Fostering Consumer–Brand Relationships in Social Media Environments: The Role of Parasocial Interaction. Journal of Interactive Marketing, 28(2), 134–148.

Lee, Y. Y., & Gan, C. L. (2020). Applications of SOR and parasocial interactions (PSI) towards impulse buying: the Malaysian perspective. Journal of Marketing Analytics, 8, 85-98.

Liang, T. P., Ho, Y. T., Li, Y. W., and Turban, E. (2011). What drives social commerce: The role of social support and relationship quality. International Journal of electronic commerce, 16(2), 69-90.

Lin, Chien-Huang, and Hung-Ming Lin (2005), "An Exploration of Taiwanese Adolescents' Impulsive Buying Tendency," Adolescence, 40 (157), 215–223

Liu, Y., Li, H., and Hu, F. (2013). Website attributes in urging online impulse purchase: An empirical investigation on consumer perceptions. Decision Support Systems, 55(3), 829-837.

Lohmöller, J.-B. (1989). Latent Variable Path Modeling with Partial Least Squares, Physica: Heidelberg..

Lord, K. R., & Putrevu, S. (2009). Informational and transformational responses to celebrity endorsements. Journal of Current Issues & Research in Advertising, 31(1), 1-13.

Lowry, P. B., & Gaskin, J. (2014). Partial least squares (PLS) structural equation modeling (SEM) for building and testing behavioral causal theory: When to choose it and how to use it. IEEE Transactions on Professional Communication, 57(2), 123–146. https://doi.org/10.1109/TPC.2014.2312452

McCroskey, J.C. (1966) 'Scales for the Measurement of Ethos', Speech Monographs 33: 65–72.

Magnini, V. P., Honeycutt, E. D., & Cross, A. M. (2008). Understanding the use of celebrity endorsers for hospitality firms. Journal of Vacation Marketing, 14(1), 57-69.

Mehrabian, A., and Russell, J. A. (1974). An approach to environmental psychology. the MIT Press.

Molin, V., & Nordgren, S. (2019). Robot or human? The marketing phenomenon of virtual influencers: A case study about virtual influencers' parasocial interaction on Instagram.

Moon, J., & Kim, Y. (2001). Extending the TAM for a World-Wide-Web context. Information and Management, 38, 217-230. http://doi.org/ckd

Moon, K.K., Tao, S.S. and Ngai, E.W. (2015) 'Social media research: theories, constructs, and conceptual frameworks', International Journal of Information, Vol. 35, No. 1, pp.33–44.

Moreno, D. E., Fabre, E., & Pasco, M. (2021). Atmospheric cues roles: customer's online trust, perceived enjoyment, and impulse buying behavior. Open Journal of Business and Management, 10(1), 223-244.

Ngai, E. W., Tao, S. S., & Moon, K. K. (2015). Social media research: theories, constructs, and conceptual frameworks. International Journal of Information Management, 35(1), 33–44

Ozdemir, E., & Akcay, G. (2019). The effect of gender identity on consumers' impulse buying behavior and the moderating role of biological sex. Business and Economics Research Journal, 10(5), 1109-1125.

Oxford Living Dictionaries. (2017) Definition of likeable in English. Lexico. [Online]. Available: https://en.oxforddictionaries.com/definition/likeable

Parboteeah, D. V., Valacich, J. S., and Wells, J. D. (2009). The influence of website characteristics on a consumer's urge to buy impulsively. Information systems research, 20(1), 60-78.

Park, J. H., & Lennon, S. J. (2004). Television apparel shopping: Impulse buying and parasocial interaction. Clothing and Textiles Research Journal, 22(3), 135-144.

Parsad, C., Prashar, S., & Tata, V. S. (2017). Understanding nature of store ambiance and individual impulse buying tendency on impulsive purchasing behavior: an emerging market perspective. DECISION, 44(4), 297–311. doi:10.1007/s40622-017-0168-2

Parsad, C., Prashar, S., Vijay, T. S., & Kumar, M. (2021). Do promotion

and prevention focus influence impulse buying: The role of mood regulation, shopping values, and impulse buying tendency. Journal of Retailing and Consumer Services, 61, 102554. doi:10.1016/j.jretconser.2021.102

Petter, S., Straub, D., & Rai, A. (2007). Specifying formative constructs in information systems research. MIS Quarterly, 31(4), 623–656. https://doi.org/10.2307/25148814

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88 (5), 879. https://doi.org/10.1037/0021-9010.88.5.879

Powell, L., Richmond, V. P., & Williams, G. C. (2011). Social networking and political campaigns: Perceptions of candidates as interpersonal constructs. North American Journal of Psychology, 13(2).

Prisbell, M., & Andersen, J. F. (1980). The importance of perceived homophily, level of uncertainty, feeling good, safety, and self-disclosure in interpersonal relationships. Communication Quarterly, 28(3), 22–33.

Robbins, T. L., & DeNisi, A. S. (1994). A closer look at interpersonal affect as a distinct influence on cognitive processing in performance evaluations. Journal of Applied Psychology, 79(3), 341.

Rogers, E. M., & Bhowmik, D. K. (1970). Homophily-heterophily: Relational concepts for communication research. Public Opinion Quarterly, 34(4), 523–538.

Rook, Dennis W. and Robert J. Fisher (1995), "Normative Influences on Impulsive Buying Behavior," Journal of Consumer Research, 22 (December): 305-313

Rosaen, S. F., & Dibble, J. L. (2017). The impact of viewer perceptions of media personae and viewer characteristics on the strength, enjoyment, and satisfaction of parasocial relationships. Communication Studies, 68(1), 1-21.

Rubin, R. B., & McHugh, M. P. (1987). Development of parasocial interaction relationships.

Shukla A. and R. Mishra,(2014) Understanding impulsive buying behavior in online retail. Journal of American Business Review, Cambridge, 3(1),197-203.

Sigal Tifferet, Ram Herstein, (2012) "Gender differences in brand commitment, impulse buying, and hedonic consumption", Journal of Product & Brand Management, Vol. 21 Iss: 3, pp.176 – 182.

Sokolova, K., & Kefi, H. (2020). Instagram and YouTube bloggers promote it, why should I buy? How credibility and parasocial interaction influence purchase intentions. Journal of retailing and consumer services, 53, 101742.

Stein, J. P., Linda Breves, P., & Anders, N. (2022). Parasocial interactions with real and virtual influencers: The role of perceived similarity and human-likeness. New Media & Society, 14614448221102900.

Sun, H.& P. Zhang. (2006). The role of affect in IS research: A critical survey and a research model. P. Zhang, D. Galleta, eds. Human-Computer Interaction and Management Information Systems—Foundations I. M. E. Sharpe, Inc., Armonk, NY, 295–329.

Sun, Tao, and Guohua Wu (2011), "Trait Predictors of Online Impulsive Buying Tendency: A Hierarchical Approach," Journal of Marketing Theory and Practice, 19 (3), 337–346.

Tariq Jalees(2009), "An Empirical Analysis of Impulsive Buying Behavior in Pakistan" International Review of Business Research Papers Vol. 5 No. 6, Pp.298-308.

Department of Telecommunication (DOT), Telecom Regulatory Authority of India (TRAI), (2024).The Indian Telecom Services Performance Indicators, July–September, 2023. Mahanagar Door Sanchar Bhawan, New Delhi

Thanh, T., Mai, T., & Khang, T. (2016). Impulse Buying's Antecedents and Consequences in the Context of Vietnam, an Asian Transitional Economy. Journal of Economics and Development, 18, 74-91. https://doi.org/10.33301/2016.18.01.05

Thorson, K. S., & Rodgers, S. (2006). Relationships between blogs as eWOM and interactivity, perceived interactivity, and parasocial interaction. Journal of Interactive Advertising, 6(2), 5-44.

Tian, Q., & Hoffner, C. A. (2010). Parasocial interaction with liked, neutral, and disliked characters on a popular TV series. Mass Communication and Society, 13, 250–269. doi:10.1080/15205430903296051

Tifferet, S., & Herstein, R. (2012). Gender differences in brand commitment, impulse buying, and hedonic consumption. Journal of product & brand management, 21(3), 176-182.

Turner, J. R. (1993). Interpersonal and psychological predictors of parasocial interaction with different television performers. Communication Quarterly, 41, 443–453.

Van der Heijden, H., Verhagen, T., & Creemers, M. (2003). Understanding online purchase intentions: contributions from technology and trust perspectives. European Journal of Information Systems, 12(1), 41–48

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. Management Science, 46(2), 186-204. http://doi.org/cdv

Verplanken Bas, Herabadi Astrid , Perry Judith and David H(2005), "Consumer style and health: The role of impulsive buying in unhealthy eating", Psychology and Health Vol. 20 No. (4) pp. 429–441

Vorderer, P., Klimmt, C., & Ritterfeld, U. (2004). Enjoyment: At the Heart of Media Entertainment. Communication Theory, 14(4), 388–408. doi:10.1111/j.1468-2885.2004.tb00321.x

Weun, Seungoog, Michael A. Jones, and Sharon E. Beatty. (1998). "The Development and Validation of the Impulse Buying Tendency Scale." Psychological Reports, 82:1123-11

Whitehead, J.L. (1968) 'Factors of Source Credibility', Quarterly Journal of Speech

54(1): 59–63

Wood Michael (1998), "Socio-economic status, delay of gratification, and impulse Buying", Journal of Economic Psychology Vol. 19 pp. 295-320

Wright, P. H. (1966). Attitude change under direct and indirect interpersonal influence. Human Relations, 19(2), 199-211.

Wu, L.; Chen, K.W.; Chiu ,M.L. (2016), Defining key drivers of online impulse purchasing: A perspective of both impulses hoppers and system users. International Journal of Management. Volume 36, pp. 284–296.

Xiang, L., Zheng, X., Lee, M. K., and Zhao, D. (2016). Exploring consumers' impulse buying behavior on social commerce platform: The role of parasocial interaction. International Journal of Information Management, 36(3), 333-347.

Yu, C., & Bastin, M. (2010), Hedonic Shopping Value and Impulse Buying Behavior in Transitional Economies: A Symbiosis in the Mainland China Marketplace. Brand Management, 18,

105-114. https://doi.org/10.1057/bm.2010.32

Zhang, Yinlong, and L.J. Shrum (2009), "The Influence of Self Construal on Impulsive Consumption," Journal of Consumer Research, 35 (5), 838–850.

Zheng, X.; Men, J.; Yang, F.; Gong, X. (2019), Understanding impulse buying in mobile commerce: An investigation into hedonic and utilitarian browsing .Int. Journal of Information Management. Volume 48, pp. 151–160.

Zheng X, Luo JM, Shang Z (2022) Effect of parasocial relationship on tourist's destination attitude and visit intention. PLoS ONE 17(4): e0265259. https://doi.org/10.1371/journal.pone.0265259

Zhou, T. (2019). Understanding User Social Commerce Usage Intention: A Stimulus-Organism-Response Perspective. Information Resources Management Journal (IRMJ), 32(4), 56-71.

Zhou, L., Zhang, P., and Zimmermann, H. D. (2013). Social commerce research: an integrated view. Electronic Commerce Research and Applications, 12(2), 61–68.

Zia, M. H., Shafique, S., & Rajput, A. (2018). The influence of gender based emotional intelligence on impulsive buying. NUML International Journal of Business & Management, 13(2), 65-75.

Zhu, Y. Q., Amelina, D., & Yen, D. C. (2020). Celebrity Endorsement and Impulsive Buying Intentions in Social Commerce-The Case of Instagram in Indonesia: Celebrity Endorsement. Journal of Electronic Commerce in Organizations (JECO), 18(1), 1-17.

Zhu, Z., Zhang, X., Wang, J. and Chen, S. (2023), "Research on the influence of online photograph reviews on tourists' travel intentions: rational and irrational perspectives", Asia Pacific Journal of Marketing and Logistics, Vol. 35 No. 1, pp. 17-34. https://doi.org/10.1108/APJML-08-2021-0547