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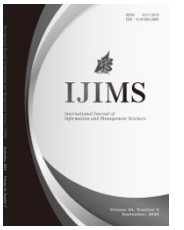

Exploring the Impact of Psychological Factors on Digital Impulse Purchasing

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Keywords

Online Impulse Buying Behavior, Scarcity, Perceived Value, Repurchase Intention

Abstract

This study investigates repurchasing patterns among impulsive online accessory buyers using a questionnaire survey. Analyzing 696 valid responses, it found that product scarcity enhances a buyer's need for uniqueness but not perceived value. Perceived value significantly impacts repurchase intention and satisfaction. Disconfirmation also positively affects both perceived value and satisfaction, which in turn drives repurchase intention. Differences were found between high and low-impulsive buyers regarding the effect of relatedness on repurchase intention. Additionally, social influence and competence, but not autonomy, positively affect repurchase intention. An importance-performance map analysis revealed satisfaction, disconfirmation, and competence as key factors influencing repurchase willingness.

1. Introduction

Rapid technological advancement and the COVID-19 pandemic have fundamentally reshaped consumer behavior, driving unprecedented growth in online shopping and intensifying consumers' reliance on digital information cues (Silvera et al., 2008). In particular, impulse purchasing—a spontaneous, emotionally driven buying decision—has been shown to hinge on the interplay between social factors and individual impulse tendencies (Rook, 1987; Dholakia, 2000; Beatty et al., 1998; Parsad et al., 2017). At the same time, customer satisfaction remains a critical determinant of repeat business: empirical studies confirm that meeting or exceeding expectations fosters stronger repurchase intentions (Nair & Radhakrishnan, 2019; Salim, 2022; Oliver, 1980). Moreover, electronic word-of-mouth (eWOM) and scarcity appeals further amplify purchase intentions in digital environments (Moradi & Zihagh, 2022; Wu et al., 2012), while intrinsic motivations—autonomy, competence, and relatedness—play a pivotal role in sustained engagement (Deci & Ryan, 1985; Gordon-Wilson, 2022).

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Despite extensive research on one-off online impulse purchases (Liu et al., 2013), there is a noticeable gap in understanding the drivers of repurchase intentions among impulse buyers. Most prior work has focused on initial purchase triggers without addressing how social influence, psychological needs satisfaction, and post-purchase evaluation combine to encourage customers to buy again. This omission limits both theoretical development and practical guidance for e-retailers seeking to cultivate loyalty among inherently impulsive consumers.

To address this, our study makes three key theoretical contributions. First, we integrate Social Influence Theory to capture how peers and eWOM shape impulse tendencies at the point of purchase. Second, we draw on Self-Determination Theory to assess how satisfying basic psychological needs (autonomy, competence, relatedness) sustains engagement beyond the initial transaction. Third, we employ Expectation-Confirmation Theory to examine how disconfirmation of expectations influences satisfaction and, in turn, repurchase intentions. By unifying these frameworks, we offer a comprehensive model that links pre-purchase social cues, intra-purchase motivations, and post-purchase evaluations.

From a practical standpoint, our findings will help e-retailers design targeted scarcity and eWOM strategies, and optimize their digital platforms to satisfy customers' psychological needs—thereby transforming one-time impulse buyers into repeat patrons. Specifically, we explore how product scarcity influences need for uniqueness and perceived value, test the mediating roles of satisfaction and perceived value in repurchase intention, and investigate how differing impulse-buying tendencies moderate these relationships.

Accordingly, we pose the following research questions (RQs):

RQ1: How does product scarcity affect consumers' need for uniqueness and their perceived value?

RQ2: Do satisfaction and perceived value mediate the effect of psychological and social drivers on repurchase intention?

RQ3: How do high versus low impulse-buying tendencies moderate these mediation pathways?

The rest of this paper is structured as follows. Section 2 reviews the relevant literature and develops our hypotheses. Section 3 details the research method and measures. Section 4 presents the analytical results. Finally, Section 5 discusses theoretical and managerial implications, limitations, and directions for future research.

2. Literature Review

2.1 Theoretical Foundations

To capture the full journey from initial impulse to repeat purchase, we integrate three complementary theories. Social Influence Theory (Deutsch & Gerard, 1955) addresses the pre-purchase stage by distinguishing normative pressures (others' expectations) from informational cues (peer recommendations, eWOM) that shape consumers' spontaneous attitudes. Self-Determination Theory (Deci & Ryan, 1985) explains the intra-purchase motivations by focusing on satisfactions of autonomy, competence, and relatedness—needs whose fulfillment sustains engagement beyond the first transaction. Finally, Expectation-Confirmation Theory (Oliver,

1980) completes the post-purchase evaluation, showing how positive disconfirmation (performance > expectations) drives satisfaction and, ultimately, repurchase intention. These frameworks complement one another—social cues establish the impulse context, need satisfaction fuels ongoing commitment, and confirmation feedback closes the loop—and are unified in our model's three blocks (Antecedents → Mediators → Outcomes) in Figure 1.

2.2 Social Influence

Individuals often adjust behaviors due to social influence, with Deutsch and Gerard (1955) identifying normative and informational types. The former relates to others' expectations, and the latter helps individuals make informed decisions (Issock et al., 2020). Research (Kuan et al., 2014; Kian et al., 2017) has established a link between social influence and consumer behavior.

With the internet, consumers can make decisions based on online information, reducing the need for normative influence (Dholakia et al., 2002; Paul et al., 2022; Huang & Chen, 2006). In conclusion, the shift towards informational social influence due to online information availability necessitates businesses to consider this factor in their marketing strategies.

2.3 Scarcity

Scarcity is an influential marketing strategy that can significantly sway consumer behavior. Limited supply can induce urgency and exclusivity, compelling consumers to act promptly to acquire the desired product or service. The effectiveness of scarcity as a marketing tool has been widely studied. Lynn's (1992) S-E-D model suggests that consumers perceive scarce products as more expensive and of higher quality, driven by the expected high costs linked to scarcity. Consequently, consumers might associate the product's high quality with its price, increasing their purchase intention and desire for the product.

Researchers like Verhallen (1982) and Lynn (1989) also found that scarcity can heighten consumers' desire for unique products. Consumers valuing uniqueness may be more motivated to buy scarce products to distinguish themselves from others. Limited-edition items and services on a first-come-first-served basis may attract consumers seeking exclusivity and differentiation. Moreover, scarcity can evoke a fear of missing out (FOMO) in consumers. FOMO is a psychological response where individuals experience anxiety or stress when they perceive others are partaking in something they aren't. Limited-time offers or limited quantities can trigger FOMO in consumers, pushing them towards impulsive purchases to avoid missing out. In conclusion, scarcity influences consumer behavior through perceived superior quality, desire for uniqueness, and FOMO, urging marketers to consider this strategy in their campaigns.

2.4 Need for Uniqueness

Fuchs et al. (2010) found that scarcity appeals work well on consumers with a strong need for uniqueness. Van Herpen et al. (2013) found the efficacy of scarcity appeals amplifies when paired with social influence cues, especially for those desiring uniqueness. Kwon & Kim (2018) revealed scarcity appeals' effectiveness varies based on product nature, being more potent for hedonic over utilitarian products. Overall, scarcity can enhance product value perception, especially when catering to uniqueness needs and leveraging social influence. However, ethical and transparent use of this strategy is essential to avoid consumer distrust.

2.5 Perceived Value

It can be noted that the concept of perceived value has been widely used in consumer behavior research to investigate consumers' evaluation of products or services (Dodds et al., 1991; Zeithaml, 1988). The functional, emotional, and social values are three critical dimensions of perceived value (Sweeney & Soutar, 2001). Functional value refers to the utilitarian benefits that consumers can obtain from the product, such as quality and price. Emotional value relates to the affective or hedonic benefits associated with the product, such as pleasure, excitement, or enjoyment. Social value refers to the social status or recognition that consumers may acquire through the use of the product (Babin & Attaway, 2000). Furthermore, research has shown that scarcity influences consumers' behavior and their perception of products. Scarce products are perceived as more valuable and desirable than their abundant counterparts (Worchel et al., 1975). Aggarwal et al. (2011) found that scarcity has a positive impact on consumers' perceived value and purchase intention. This effect is explained by the psychological theory of reactance, which suggests that the perception of scarcity increases the perceived value of a product because it generates a feeling of loss aversion (Brehm, 1966). Moreover, the need for uniqueness has been found to be an important motivator of consumer behavior. Tian et al. (2001) proposed the concept of consumers' need for uniqueness (CNFU), which describes the desire to differentiate oneself from others by acquiring unique products. Consumers with high CNFU tend to evaluate products based on their potential to enhance their uniqueness and social status (Tian et al., 2001). Previous research has also shown that CNFU has a positive influence on consumers' purchase intention and willingness to pay a premium for unique products (Lynn & Harris, 1997; Tian et al., 2001).

Building on Need for Uniqueness Theory (Tian et al., 2001), consumers who seek to distinguish themselves view products that signal distinctiveness as especially valuable. Lynn and Harris (1997) showed that when uniqueness needs are activated—whether by design, limited editions, or personalized features—individuals attribute higher social and emotional worth to those products, over and above their utilitarian benefits. Likewise, Sweeney and Soutar's (2001) three-dimensional framework of perceived value (functional, emotional, social) implies that a strong need for uniqueness amplifies each dimension: unique products not only perform well (functional), but also provide pride and self-expression (emotional) and elevate one's status among peers (social).

In summary, the literature suggests scarcity impacts consumers' uniqueness needs, perceived value, and satisfaction. The proposed hypotheses align with this literature and will guide this study.

H1: The scarcity has positive effects to need for uniqueness

H2: The scarcity has positive effects to perceived value

H3. Consumers' need for uniqueness has a positive effect on their overall perceived value of the product

H4: The perceived value has positive effects to satisfaction

2.6 Impulse Purchase

Understanding impulse buying in the online space requires considering both situational factors and consumer characteristics (Li et al., 2014). Factors like time pressure, promotional offers, and product availability can trigger online impulse buying (Park & Kim, 2003), while personality traits, impulse buying tendencies, and emotional states also contribute (San-Martín et al., 2016). Emotions play a significant role too. Positive emotions, like excitement and happiness, can fuel impulse buying (Kacen & Lee, 2002), as can negative emotions like frustration and boredom (Huang & Kuo, 2018).

Given the importance of online impulse buying behavior in the current era of e-commerce, it is crucial to investigate its impact on various outcomes. In addition to repurchase intention and satisfaction, research has also explored the impact of online impulse buying behavior on other outcomes such as post-purchase regret, loyalty, and trust (Sultan et al., 2020). Therefore, future research can focus on exploring the broader impact of online impulse buying behavior on various consumer outcomes.

Based on the existing literature, the following hypotheses can be proposed:

H5: The online impulse purchase tendency has a positive effect on repurchase intention.

H6: Satisfaction mediates the relationship between online impulse purchase tendency and repurchase intention.

Perceived scarcity significantly influences consumer behavior, particularly in impulse buying (Lynn, 1989). Scarcity enhances buying motivation and encourages swift, even unplanned, purchases. The fear of missing out (FOMO) theory, involving anxiety about scarce or limited products, supports this idea (Berger & Milkman, 2012).

Consumer perceptions and experiences significantly influence repurchase intentions (Oliver, 1999). Satisfaction predicts repurchase likelihood: satisfied consumers are prone to buy again and to recommend positively, fostering brand loyalty and customer base growth (Anderson & Mittal, 2000).

The rise of online shopping and its influence on impulse buying has critical implications for businesses (Lee, 2011). Perceived scarcity can prompt impulse buys, and satisfaction may prompt repurchases. Therefore, creating positive online experiences and scarcity-based marketing can enhance impulse buying.

2.7 Expectation-Confirmation Theory

In the expectation-confirmation framework, consumers first form expectations prior to purchase and then compare these to perceived performance post-purchase, yielding confirmation (performance = expectations) or positive disconfirmation (performance > expectations) (Oliver, 1980). Research in e-commerce, mobile apps, and online banking has repeatedly shown that when products or services exceed consumers' expectations, they not only experience greater satisfaction but also attribute higher functional, emotional, and social value to their purchases (Zeithaml, 1988; Sweeney & Soutar, 2001; Lin & Wang, 2012; Hwang & Wu, 2019; Gao et al., 2020). Furthermore, recent work highlights how positive emotions (e.g., enjoyment) mediate the link between disconfirmation and satisfaction, strengthening its explanatory power in hedonic

contexts (Lin et al., 2020). Extending this model to online impulse buying, we contend that instances of positive disconfirmation will lead consumers to perceive greater overall value and to feel more satisfied with their purchase. Therefore, we hypothesize that positive disconfirmation will have a positive effect on both perceived value (H7) and satisfaction (H8).

In turn, higher levels of satisfaction and perceived value have been shown to be powerful antecedents of repurchase intention, even in impulse-driven contexts (Oliver, 1980; Nair & Radhakrishnan, 2019; Salim, 2022). When consumers feel that their expectations have been exceeded and that they have received substantial utilitarian, hedonic, and social benefits, they are more inclined to buy again. Accordingly, we further hypothesize that satisfaction will positively influence repurchase intention (H9) and that perceived value will similarly encourage future purchase behavior (H10).

H7: The degree of disconfirmation has positive effect on perceived value.

H8: The degree of disconfirmation has positive effect on satisfaction.

H9: The satisfaction has positive effect on repurchase intention.

H10: The perceived value has positive effect on repurchase intention.

2.8 Self-Determination Theory

Drawing on Self-Determination Theory (SDT; Deci & Ryan, 1985), which posits that satisfying the needs for autonomy (volitional action), competence (effectiveness), and relatedness (social connection) underpins intrinsic motivation across domains (Ng et al., 2012; Kim et al., 2015), we argue that need-satisfaction will likewise drive both repeat purchasing and favorable impulse-buying attitudes in online settings. In consumer contexts, fulfilling these needs has been shown to boost engagement (Lin et al., 2016), purchase intention (Liu et al., 2020), and brand loyalty (Chen et al., 2019). When shoppers feel in control (autonomy), capable (competence), and connected (relatedness) during or after an impulse purchase, they are more inclined to buy again and to view impulsive purchases positively. H11 therefore proposes that satisfaction of basic psychological needs exerts a positive effect on repurchase intention, while H12 proposes that satisfaction of basic psychological needs exerts a positive effect on online impulse purchase tendency.

H11: The basic psychological needs have positive effect on repurchase intention.

H11-1: The autonomy has positive effect on repurchase intention.

H11-2: The competence has positive effects on repurchase intention.

H12: The basic psychological needs have positive effect on online impulse purchase tendency.

H12-1: The autonomy has positive effect on online impulse purchase tendency.

H12-2: The competence has positive effects on online impulse purchase tendency.

Electronic word-of-mouth (eWOM) represents another critical social-influence mechanism in digital consumer behavior. Research consistently shows that consumers who seek opinions online—and who perceive those opinions as credible—exhibit stronger purchase intentions and more favorable brand attitudes (Cheung et al., 2012; Park & Lee, 2009; Xie et al., 2011). Yakhlef

and Nordin's (2021) Information-Word-of-mouth-Relatedness Integration (IWRI) construct further highlights how informational exchanges satisfy relatedness needs, providing both recognition and social connection. Similarly, Sheldon and Gunz (2009) identify social influence as a distinct eWOM dimension that can amplify post-purchase satisfaction and engagement. Building on these insights, we posit that eWOM-based social influence will positively affect both repurchase intention (H11-3) and online impulse purchase tendency (H12-3). Based on these studies, the following hypotheses can be proposed:

H11-3: The social Influence has a positive effect on repurchase intention.

H12-3: The social Influence has a positive effect on online impulse purchase tendency.

These hypotheses suggest that consumers' desire for connection and recognition from others, as captured by the social Influence, plays an important role in predicting their repurchase intention and impulse purchase tendency. Therefore, businesses that can create a sense of community and foster connections between their customers may be more successful in generating repeat purchases and encouraging impulse buying behavior.

3. Research Method

Building on the conceptual framework presented in Fig.1, our empirical procedure proceeded in four steps. First, we organized the proposed structural model into three sequential blocks: Block 1 (Antecedents) comprises product scarcity and need for uniqueness; Block 2 (Mediators) includes impulsive buying tendency, perceived value, and satisfaction; and Block 3 (Outcome) is repurchase intention. Within this configuration, we explicitly specified paths derived from Expectation-Confirmation Theory (disconfirmation $\rightarrow$ satisfaction $\rightarrow$ repurchase intention) and from Self-Determination Theory (autonomy, competence, and relatedness $\rightarrow$ impulsive buying tendency and/or repurchase intention).

Second, we fielded a cross-sectional online survey of Facebook fan-group members of three major accessory retailers. A screening question confirmed that each of the 716 respondents had made at least one online impulse purchase in the past six months; after data cleaning, 696 valid cases remained (97 percent usable). The instrument opened with a brief scenario defining "digital impulse purchasing" as a spontaneous, emotionally driven decision. Table 1 presents the revised operational definitions and measurement scales for all constructs.

Third, we assessed measurement quality via exploratory factor analysis (principal-component extraction with Varimax rotation; KMO = 0.85; Bartlett's $\chi^2 = 3{,}452.12$, $p < 0.001$) and confirmatory factor analysis (AVE and HTMT tests; results in Tables 2–3 and Appendix A).

Fourth, we estimated the structural model using PLS-SEM, testing all hypothesized paths—including ECT and SDT linkages—and conducted a multi-group analysis (PLS-MGA) to compare high- versus low-impulsive buyers. Finally, an importance–performance matrix analysis (IPMA) mapped each construct's total effect on repurchase intention against its performance score, highlighting strategic priorities for e-retailers.

By combining rigorous scale validation (EFA/CFA), structural modeling (PLS-SEM and PLS-MGA), and strategic diagnostics (IPMA), this methodology delivers both theoretical rigor and actionable insights into the antecedents, mediators, and outcomes that drive online impulse purchase behavior and repeat buying.

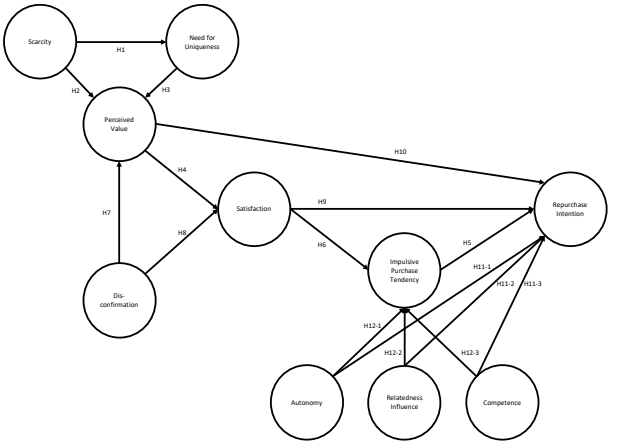

Fig.1 *Research Model*

Table.1 *Operational Definition*

Constructs	Operational Definition	References
Impulse purchase tendency	The propensity of a consumer to make spontaneous, unplanned online purchases of accessories and services, reflecting actual behavioral patterns rather than purely evaluative judgments.	Liang et al. (2021) Verplanken & Herabadi (2001)
Scarcity	Product scarcity that results from the limited supply of products or consumer demand.	Verhallen and Robben (1994); Lynn & Bogert (1996)
Need for Uniqueness	Consumers pursue differentiation relative to others that is achieved through the acquisition, utilization, and disposition of a product for the purpose of developing and enhancing one's personal and social identity.	Tian et al. (2001); Ruvio, Shoham & Makovec Brenčič (2008)
Perceived Value	Consumers make an overall assessment of the price they pay for the purchase of a accessories and the value of the product they acquire.	Sweeney & Soutar (2001); Hsu & Lin (2015)
Disconfirmation	The consistency between the pre-purchase expectations and the post-purchase performance.	Bhattacherjee (2001)
Satisfaction	The positive or negative psychological state of consumers after purchase accessories.	Bhattacherjee (2001); Hsu & Lin (2015)

Social Influence	Before purchasing an accessory, consumers seek opinions from others and the groups in which they belong via the internet, while also posting their own opinions and passing them on to more people. In this process, consumers desire to obtain recognition from others, and establish connections with opinion passers who share information or opinion recipients who receive the information they pass.	Sheldon & Gunz (2009); Chu & Kim (2011); Yoon (2015); Wang et al. (2016)
Autonomy	Consumers desire to make their own choices, freely express their true feelings, and further implement or act.	Sheldon and Gunz (2009); Sheldon and Hilpert (2012)
Competence	Through their interactions with the external environment, consumers feel satisfaction when sensing their own competence, thereby responding to the environment, learning therefrom, and showcasing their abilities.	Sheldon and Gunz (2009); Sheldon and Hilpert (2012)
Repurchase Intention	Consumers buy the accessories more than once; they are willing to continue buying the accessories.	Dodds, Monroe and Grewal (1991); Schiffman and Kanuk (2000); Wu et al. (2014)

4. Analytical Results

In this study, data was collected through surveys and 696 valid responses were obtained out of 716 surveys, resulting in a response rate of approximately 97%. The sample included 46.5% male respondents and 53.5% female respondents, with the majority of respondents falling within the age range of 20-25 years (35.4%). The sample was largely composed of students (22.4%) and workers in the service sector (20.5%), with most respondents having a disposable income of $300 USD.

Factor analysis was performed on the survey data, and Table 2 presents the results of the analysis. Any question items with factor loadings below 0.5 were removed from the analysis. The factors identified in the study had qualified Cronbach's α (greater than 0.7), ρ_A (greater than 0.7), and composite reliability (greater than 0.6), indicating satisfactory reliability (Fornell & Larcker, 1981). The average variance extracted (AVE) for each construct was also greater than 0.5, which is acceptable for convergent validity (Fornell & Larcker, 1981).

Table.2 *Factor Analysis*

Construct	ID	Item	Avg.	Std. Error.	Factor Loading	Composite Reliability	ρ_A	α	AVE
Online Impulse purchase tendency (IPT)	IPT1	I buy accessories without thinking too much when I shop around online.	3. 261	1. 000	0.833	0.858	0.863	0.944	0.670
	IPT2	"Just do it" can represent my attitude on online shopping.	3. 095	0.935	0.899				
	IPT3	Sometimes, I buy accessories online based on my feeling.	3. 627	1. 101	0.711				
Scarcity (SCA)	SCA1	I have bought accessories with limited sale time.	3. 313	1. 206	0.878	0.921	0.871	0.870	0.794
	SCA2	I have bought accessories with limited quantity.	3. 010	1. 169	0.923				
	SCA3	I have bought accessories that are uneasy to find for sale.	3. 001	1. 150	0.872				
Need for Uniqueness (NFU)	NFU2	I like to buy unique accessories.	3. 160	1. 112	0.796	0.853	0.854	0.853	0.774
	NFU3	I am interested in unusual accessories to form my image to others.	3. 209	1. 100	0.852				
	NFU4	I buy special accessories to show my characteristics.	3. 195	1. 059	0.836				
Perceived Value (PV)	PV1	I buy accessories because they are valuable.	3. 805	0.802	0.835	0.906	0.847	0.845	0.764
	PV2	I buy accessories of acceptable quality.	3. 868	0.817	0.846				

	PV3	I buy accessories with outstanding characteristics.	3. 922	0.800	0.857				
Disconfirmation (CON)	CON1	I buy accessories which can give me the feeling like what I expected.	3. 727	0.768	0.841	0.913	0.864	0.858	0.778
	CON3	I buy accessories which can fit my needs.	3. 869	0.766	0.872				
	CON6	I buy accessories with expectation.	3. 892	0.786	0.859				
Satisfaction (SAT)	SAT1	I buy accessories that can make me happy.	3. 933	0.818	0.906	0.939	0.903	0.870	0.794
	SAT4	I buy accessories that can fulfill my wish.	4. 013	0.710	0.897				
	SAT5	I enjoy buying accessories with.	4. 046	0.726	0.889				
Social Influence (IWRI)	RI1	Buying accessories helps me to feel part of a larger community.	3. 008	0.845	0.823	0.863	0.770	0.760	0.677
	RI2	I need to refer to online comments to help me buy accessories.	3. 446	1. 051	0.878				
	RI3	I feel close to others who buy the same accessories.	3. 096	0.840	0.764				
Autonomy (AUT)	AUT1	I buy willingly accessories.	4. 412	0.818	0.826	0.884	0.833	0.826	0.657
	AUT2	I buy accessories which can show my taste.	3. 976	0.799	0.835				
	AUT4	I buy accessories which can show my characteristics.	4. 206	0.755	0.790				
	AUT5	I can decide to buy accessories.	3. 982	0.777	0.790				

Competence (COM)	COM1	I feel confident in my purchase.	3. 512	0.795	0.614	0.804	0.709	0.711	0.581
	COM2	Shopping online/offline is easy to me.	3. 732	0.866	0.827				
	COM5	I feel effective in my shopping.	3. 448	1. 114	0.857				
Repurchase Intention (RP)	RP1	I would like to buy similar accessories again.	3. 786	0.956	0.862	0.763	0.768	0.763	0.676
	RP2	I buy specific accessories even if I can find others.	3. 670	0.859	0.827				
	RP5	I would recommend my friends to buy the accessories.	3. 893	0.871	0.782				

Based on the research methodology, the study collected 696 valid responses out of 716 surveys, representing a response rate of approximately 97%. The sample consisted of 46.5% male and 53.5% female respondents, with the majority of respondents aged between 20 and 25 (35.4%). Furthermore, the majority of respondents were students (22.4%) or workers in service sectors (20.5%) with a disposable income of $300 USD. The factor analysis revealed (Table 2) that all question items with factor loading lower than 0.5 were removed. The factors in the formal study had qualified Cronbach's α (greater than 0.7), ρ_A (greater than 0.7), and composite reliability (greater than 0.6), indicating acceptable reliability (Fornell and Larcker, 1981). Moreover, the average variance extracted (AVE) of each construct was higher than 0.5, which is acceptable for convergent validity (Fornell & Larcker, 1981). The study demonstrated that all constructs had discriminant validity based on the analytical results of Heterotrait-Monotrait Ratio of Correlations (HTMT) (Henseler et al., 2016; Hair et al., 2017). The matrix's value for each construct should be smaller than 0.85 (Lui et al., 2018) (Table 3). Additionally, the fit of the estimated model was tested with standardized root mean square residual (SRMR), the unweighted least squares discrepancy dULS, and the geodesic discrepancy d_G. These values should be smaller than 95% bootstrap quantile for an acceptable model fit (Dijkstra et al., 2015). The SRMR was 0.052, which is smaller than 0.08 and smaller than its 95% bootstrap quantile (0.061), indicating an acceptable model fit (Dijkstra et al., 2015). The value for d_{ULS} was 0.689, and the value for dG was 0.547, which were smaller than HI95 (dULS is 0.712 and dG is 0.603), respectively.

Table.3 *HTMT*

	AUT	NFU	COM	CON	IWRI	IPT	PV	RP	SAT	SCA
AUT										
NFU	0.152									
COM	0.614	0.262								
CON	0.597	0.160	0.758							
IWRI	0.421	0.188	0.368	0.275						
IPT	0.057	0.247	0.191	0.065	0.191					
PV	0.705	0.174	0.604	0.729	0.295	0.084				
RP	0.652	0.205	0.838	0.830	0.385	0.142	0.686			
SAT	0.706	0.165	0.703	0.733	0.285	0.084	0.800	0.832		
SCA	0.099	0.340	0.312	0.144	0.201	0.268	0.139	0.212	0.144	

This study analyzed the causality relationship via PLS-SEM which is applicable for evaluate the new model (Ringle et al., 2015). Fig. 2 and Table 4 shows the analytical results.

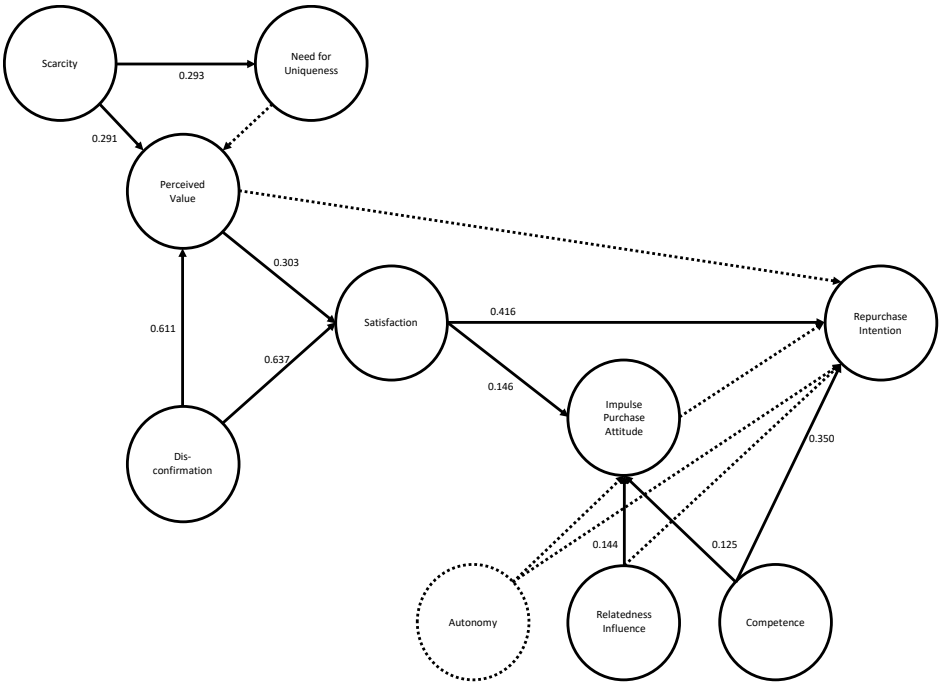

Fig. 2 *Causality Relationship*

Table.4 *Relationship and Hypothesis Test*

Relation	Coef.	p-Value	Test
SCA→NFU	0.291	<0.001	H1 is supported
SCA→PV	0.293	<0.001	H2 is supported
NFU→PV	0.0093	0.283	H3 is unsupported
PV→SAT	0.303	<0.001	H4 is supported
IPT→RP	--	0.185	H5 is unsupported
SAT→IPT	0.146	0.035	H6 is supported
CON→PV	0.611	<0.001	H7 is supported
CON→SAT	0.636	<0.001	H8 is supported
SAT→RP	0.416	<0.001	H9 is supported
PV→RP	0.045	0.344	H10 is unsupported
AUT→RP	0.091	0.211	H11-1 is unsupported
IWRI→RP	0.134	0.021	H11-2 is supported
COM→RP	0.350	<0.001	H11-3 is supported
AUT→IPT	0.101	0.122	H12-1 is unsupported
IWRI→IPT	0.144	0.011	H12-2 is supported
COM→IPT	0.123	0.024	H12-3 is supported

4. 3 Multi-Group Analysis (MGA)

Participants were divided into four groups based on impulse buying tendencies assessed via a questionnaire, focusing on comparisons between the highest and lowest scoring quartiles using Multi-Group Analysis (MGA). A Measurement Invariance of Composite Models (MICOM) test was conducted prior to MGA (Machaka-Mare et al., 2023). Configurational invariance was established as data collection procedures, algorithm configurations, and coding methods were consistent across groups. Component invariance was supported by original correlation coefficients surpassing 5% correlation coefficients from the aggregated distribution, with all p-values exceeding 0.05 (Henseler et al., 2016). Given that MICOM results confirmed measurement invariance, partial measurement invariance was assumed, allowing MGA to proceed. PLS-MGA test results (Table 6) revealed a significant difference between high and low impulsive buyers regarding the impact of social Influence on repurchase intention, indicating high-impulse buyers are more influenced by online opinions.

Table.5 *MICOM Test Results*

	Mean Difference	2.5%	97.5%	P-Value Of Mean Difference	Variance Differences	2.5%	97.5%	P-Value of Variance Difference
AUT	-0.008	-0.410	0.360	0.560	0.013	-0.437	0.508	0.803
CNFU	0.004	-0.403	0.390	0.069	0.008	-0.431	0.485	0.583
COM	0.002	-0.376	0.373	0.081	0.025	-0.541	0.575	0.072
CON	-0.006	-0.374	0.391	0.448	0.025	-0.494	0.567	0.967
IWRI	-0.006	-0.384	0.384	0.070	0.014	-0.545	0.551	0.636
IPT	-0.004	-0.400	0.405	0.065	0.006	-0.319	0.358	0.065
PV	-0.005	-0.403	0.365	0.299	0.019	-0.477	0.562	0.421
RP	-0.001	-0.383	0.382	0.070	0.030	-0.682	0.675	0.607
SAT	-0.005	-0.392	0.381	0.413	0.024	-0.419	0.525	0.975
SCA	0.004	-0.409	0.430	0.150	0.012	-0.396	0.415	0.328

Table.6 *PLS-MGA Results*

	PLS-MGA		Parametric Test		Welch-Satterthwait Test	
Relations	Difference	p-value	Difference	p-value	Difference	p-value
AUT→IPT	0.173	0.607	0.173	0.592	0.173	0.612
AUT→RP	-0.181	0.382	-0.181	0.402	-0.181	0.394
CNFU→PV	0.227	0.175	0.227	0.154	0.227	0.182
COM→IPT	-0.113	0.708	-0.113	0.727	-0.113	0.728
COM→RP	-0.100	0.590	-0.100	0.603	-0.100	0.590
CON→PV	-0.186	0.145	-0.186	0.125	-0.186	0.156
CON→SAT	-0.112	0.446	-0.112	0.446	-0.112	0.463
IWRI→IPT	0.229	0.486	0.229	0.610	0.229	0.559
IWRI→RP	-0.300	0.030	-0.300	0.032	-0.300	0.023
IPT→RP	0.021	0.837	0.021	0.909	0.021	0.897
PV→RP	0.380	0.139	0.380	0.139	0.380	0.129
PV→SAT	0.111	0.476	0.111	0.469	0.111	0.486
SAT→IPT	-0.167	0.640	-0.167	0.613	-0.167	0.634
SAT→RP	0.020	0.921	0.020	0.930	0.020	0.930
SCA→CNFU	-0.088	0.533	-0.088	0.573	-0.088	0.584
SCA→PV	0.333	0.053	0.333	0.039	0.333	0.050

4.4 The importance–performance map analysis

The Importance–performance map analysis (IPMA) constructs a matrix assessing the importance and performance of aspects related to repurchase intention. Importance was calculated as the total effect of direct and indirect effects, while performance was measured as the average value of standardized latent variable scores. The IPMA found COM, CON, and SAT to be important with CON and SCA performing well (scores above 70). AUT and SCA had low importance but performed well. These findings differ from previous research, e.g., Tsai et al., 2016. Interestingly, competence was important but had low performance, suggesting performance could be elevated by improving competence. This research underscores the importance of considering factors impacting repurchase intention and the utility of IPMA to identify areas for improvement.

Table.7 *IPMA Results*

	Importance	Performance
AUT	0.056	74. 946
NFU	0.015	54. 780
COM	0.350	64. 416
CON	0.381	70.875
IWRI	0.071	67. 208
IPT	0.025	44. 871
PV	0.062	39. 941
SAT	0.416	69. 440
SCA	0.026	74. 961

5. Discussion

The present study examined how product scarcity, disconfirmation, social influence, and basic psychological needs jointly shape both repurchase intention and online impulse-buying attitudes among accessory shoppers. Our key findings offer several insights—and prompt important refinements—to existing theories of impulse buying and post-purchase behavior.

First, scarcity significantly increased consumers' need for uniqueness and directly enhanced perceived value, corroborating prior evidence that limited availability signals exclusivity and worth (Wu et al., 2012; Worchel et al., 1975). However, contrary to Need for Uniqueness Theory (Tian et al., 2001) and Lynn and Harris's (1997) findings, need for uniqueness did not translate into higher perceived value in our sample. This divergence may stem from the commodity-like nature of many online accessories, where scarcity itself—and not consumers' differentiation motives—drives value perceptions more strongly than uniqueness needs.

Second, positive disconfirmation of expectations robustly increased both perceived value and satisfaction (H7–H8), which in turn fueled repurchase intention (H9). These results echo Expectation-Confirmation Theory's core tenets (Oliver, 1980) and align with studies in e-commerce showing that "performance > expectations" creates stronger affective and cognitive

evaluations (Lin & Wang, 2012; Hwang & Wu, 2019). In keeping with Silvera et al. (2008), who emphasized affective drivers in impulse purchases, our findings confirm that satisfaction remains the primary catalyst for repeat buying, even when perceived value alone did not directly predict repurchase (H10 unsupported).

Third, the role of basic psychological needs, derived from Self-Determination Theory (Deci & Ryan, 1985), was only partially upheld. Competence and relatedness (IWRI) both exerted positive effects on repurchase intention and impulse attitude (H11-2, H11-3, H12-2, H12-3), supporting the view that feeling effective and socially connected sustains consumer engagement (Chen et al., 2019; Lin et al., 2016). Autonomy, however, was non-significant in influencing either repurchase or impulse attitudes. This contrasts with SDT's emphasis on volitional choice as a key motivator, suggesting that in fast-paced, emotion-driven impulse contexts, consumers may prioritize efficacy and social affirmation over the freedom to choose (Dholakia, 2000).

Fourth, electronic word-of-mouth emerged as a powerful form of social influence, particularly for high-impulsive buyers: Multi-Group Analysis revealed that online opinions more strongly swayed repeat-purchase decisions among those with greater impulse tendencies. This pattern resonates with Silvera et al.'s (2008) finding that social cues magnify affective purchase drivers and highlights the importance of informational influence in digital impulse settings.

Overall, these results affirm the utility of integrating Social Influence Theory, Self-Determination Theory, and Expectation-Confirmation Theory into a unified model, while also identifying boundary conditions. The non-significant paths (NFU→PV, PV→RP, autonomy effects) point to the need for future research to consider product type, hedonic versus utilitarian distinctions, and the differential salience of volitional motives in online impulse contexts. By explicitly comparing our empirical patterns to foundational work—Silvera et al. (2008) on social and affective triggers, Dholakia (2000) on the formation of impulse enactment, and Deci & Ryan (1985) on intrinsic needs—we underscore both consistencies (e.g., the primacy of satisfaction, the potency of social and competence cues) and divergences that refine theory for the digital era.

6. Conclusion and Suggestions

This study offers empirical insights into the psychological and social drivers of repeat purchasing among online impulse buyers. Our findings suggest that product scarcity may contribute to heightened need for uniqueness and elevated perceived value, and that positive disconfirmation of expectations strengthens both perceived value and satisfaction—factors that in turn may contribute to repurchase intention. Notably, competence and relatedness emerged as significant antecedents of both repurchase intention and impulse-buying attitude, whereas autonomy did not; this points to the importance of designing experiences that make consumers feel capable and connected.

However, these conclusions should be interpreted in light of certain limitations. The cross-sectional design and reliance on self-reported survey data preclude strong causal claims, and future longitudinal or experimental work is needed to confirm these pathways.

Research Implications

Building on our integrated model, future research could explore how contextual factors—such as whether a product is predominantly hedonic or utilitarian—may moderate the effects of autonomy, competence, and relatedness on impulse-buying and repurchase behaviors. Employing longitudinal designs and objective behavioral data (for example, clickstream records or actual purchase logs) would strengthen causal inferences and help validate the mediating roles of disconfirmation and satisfaction on repeat purchases. Finally, examining demographic and cultural differences across consumer segments may reveal whether the loyalty mechanisms observed here operate consistently, or whether specific groups respond differently to scarcity appeals, social influence, and psychological need satisfaction.

Managerial Implications

For e-retailers seeking to translate these insights into practice, subtle scarcity messaging—such as limited-edition bundles ("Only 50 units remaining!") or brief flash sales—may gently heighten consumers' need for uniqueness without appearing overly aggressive. To leverage positive disconfirmation, platforms can solicit post-purchase feedback, showcase "verified buyer" badges, and transparently update product ratings, ensuring that actual performance is clearly communicated. Embedding interactive tutorials or style guides within product pages may foster shoppers' sense of competence, encouraging both impulse purchases and repeat visits. Likewise, integrating user reviews, social feeds, or "shop with friends" features can satisfy relatedness needs by highlighting peer endorsements and fostering community. Finally, rather than broad discounting, targeted loyalty incentives—such as early access to new releases for customers who previously made an impulse purchase—may strengthen social connections and gently nudge consumers toward repeat buying without undermining perceived product value.

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