ORIGINAL ARTICLE

International Journal of **Consumer Studies** **WILEY**

Will social media celebrities drive me crazy? Exploring the effects of celebrity endorsement on impulsive buying behavior in social commerce

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Abstract

This study evaluates the influence of social media celebrity endorsements on consumers' impulsive buying behavior in social commerce by extending the signaling theory and commitment-trust theory. A self-managed online questionnaire is designed to collect the data from 295 valid respondents and analyze it using a multi-analytical hybrid structural equation modeling-artificial neural network (ANN). The results reveal that relational switching alternatives and relationship benefits directly contribute to relationship commitment to social media celebrity, whereas shared value and parasocial interaction positively lead to social commerce trust; both relationship commitment and social commerce trust induce consumers' impulsive buying behavior in social commerce. From a theoretical perspective, this study enriches the components of signaling theory and commitment-trust theory, expanding their applicability and transferability in social commerce. Moreover, this study consolidates the theoretical integration, indicating that signaling theory can be considered as an antecedent of commitment-trust theory for triggering consumers' impulsive buying. Methodologically, adopting second-order constructs benefits, this study captures the multidimensionality and complexity of social commerce trust and impulsive buying from the partial least squares-ANN perspectives. In practice, this research provides valuable insights into how to better invite celebrity endorsements and build long-term relationships with customers, as well as offers insights into countries where social commerce is lacking today. That being said, this study is constrained by its cross-sectional research design, conducted in Malaysia. Future research endeavors should consider launching longitudinal, multicountry studies to broaden the applicability of the findings.

KEYWORDS
commitment-trust theory, impulsive buying behavior, SEM-ANN, signaling theory, social commerce

1 | INTRODUCTION

The rapid adoption of social networking sites such as Instagram, Twitter, and Facebook in modern society has transformed consumer behavior and motivated businesses to participate in social commerce (Aw et al., 2023). Social commerce, as the definition demonstrated in Table 1, refers to the use of Web 2.0 technologies and social media platforms to facilitate interaction, participation, collaboration, and value creation between sellers and customers. The ultimate goal of social commerce is to stimulate purchase intentions and the actual decision-making process regarding the acquisition of products or services (Nadeem, 2016). Social commerce presents advantages for both consumers and merchants. By cultivating stronger bonds with customers, merchants can boost sales and cultivate brand loyalty, leading to a more dedicated and devoted customer base for their products or brands (Xiang, 2016). For customers, the integration of advancements in social commerce websites encourages active participation through user-generated content (Zhang et al., 2014), influencing their decision-making and purchase behaviors within online communities and marketplaces (Zafar et al., 2021). Consequently, social commerce may become one of the most critical areas in both industry and academia in the coming decades (Hajli, 2014). Social commerce has achieved significant milestones in recent years (En et al., 2021). It has surpassed in-store retail to become Southeast Asia's second most popular shopping channel. The income per order increased by more than 85% in the first two quarters of 2021 (GlobeNewswire, 2022). In Malaysia, the industry is expected to grow by 45.2% annually, reaching US\$1327.5 million in 2022 (GlobeNewswire, 2022; Sim et al., 2023; Wei et al., 2023). Such outstanding performance indicates that social commerce is a trending topic that is worth exploring.

Social media celebrities, also known as "influencers," have emerged as a new category of online superstars, evolving with the rising popularity of social commerce. In contrast to traditional celebrities who gain public recognition through their professional talents in traditional media, such as press, movies, and advertising, social media celebrities effectively position themselves as key opinion leaders by sharing subjective purchasing habits and opinions while managing their personal profiles on social media (Zafar et al., 2021) As a result, they are more reputable and influential, attracting countless fans due to their sincerity (Chou et al., 2022; Kamboj & Sharma, 2023). Increasingly, social media celebrities are being invited by social commerce sellers to cultivate customer loyalty and trust by participating in commercial activities and providing multiple features to assist customers in creating intimate and two-way relationships (d'Astous & Mouakhar-Klouz, 2022; Halder et al., 2021; Yi et al., 2023). Given that such a feeling of closeness with social media celebrities is rarely achieved in offline or actual social interactions, it may be considered a one-sided parasocial interaction (Xiang, 2016). Rubin et al. (1985) initially proposed the existence of intimate relationships among celebrities, and users will infer their latent effect on increasing customer purchasing tendencies. Chen et al. (2019) and Jin and Ryu (2020) also argued the critical roles of social media celebrities in recent studies on consumer behavioral intentions. Consequently, this study reasonably infers that the sources related to

TABLE 1 Terms and conceptualization.

Term	Conceptualization	Source
Social media	Social media is considered a subset of social commerce. It refers to online platforms and websites that allow users to create, share, and interact with content, information, and others. These platforms typically enable users to post text, images, videos, and other multimedia content, as well as engage in discussions, comments, and social networking.	(Abid et al., 2022; Aw & Labrecque, 2022)
Social commerce	Social commerce refers to the utilization of Web 2.0 technologies and social media platforms to facilitate interaction, participation, collaboration and value creation between sellers and customers; the eventual target of social commerce is to trigger purchase intention or actual decision-making process regarding the acquisition of products or services	(Aw et al., 2023; Nadeem, 2016)
Electronic commerce (i.e., E-commerce)	Electronic commerce (i.e., E-commerce) refers to the buying and selling of products and services through electronic channels.	(Chawla & Kumar, 2022)
Social media celebrities	Social media celebrities are considered a new category of online superstars that evolved with the rise in the popularity of social commerce. They are also known as "influencers."	(Aw & Labrecque, 2020; Zafar et al., 2021)

celebrity endorsements can generate relationship commitments of social media celebrities and social commerce trust, respectively, thereby stimulating consumers' impulsive buying behavior.

Although the erstwhile literature has explored various determinants influencing consumer impulsive buying behavior in social commerce, the perspectives of commitment-trust and signaling as antecedents are underexplored. Current studies are typically divided into two research starting points: peripheral characteristics and platform-specific research. Peripheral characteristics include the role of browsing (Huang, 2016; Zhang et al., 2018; Zhang et al., 2019), system and website quality (Akram et al., 2018, p. 016; Wu et al., 2016), social

attributes (Liu et al., 2019; Zhang et al., 2014), and so on. Platform-specific research has explored the urge to buy impulsively on various social commerce platforms, such as Facebook (J. V. Chen et al., 2016), WeChat (Chen et al., 2019), Mogujie (Xiang, 2016), and also platforms that focus on specific functions, such as mobile auctions (Chen & Yao, 2018). To address the noticeable absence of research on the impact of celebrity endorsements on commitment and trust within social commerce, and with the intention of bridging the previously mentioned knowledge gaps, this study considers social media celebrity endorsements as initial antecedents in the signaling theory (including relational switching alternatives, relationship benefit, shared value, parasocial interaction, and opportunistic behavior), investigates their effects on the relationship commitment to social media celebrities and social commerce trust, and consequently, their impact on impulsive buying in social commerce.

The novelty of this study addresses the deficiency in the existing literature regarding the signaling theory in social commerce. By building upon the refinement of the signaling theory as adopted by Chen et al. (2019, 2022), and Cui et al. (2020), this study does not confine the research scope solely to the perspective of signals but rather divides the signaling theory into three essential elements, namely signaler, signal, and receiver. This division is based on the practicality of celebrity endorsements in the marketing context (Boateng, 2019). By sensibly matching proposed antecedents and elements, this study explores the role of signaling theory from a fully holistic perspective on impulsive buying behavior. Second, this study refers to the relationship commitment and trust in the commitment-trust theory to establish a connection between celebrity endorsement attributes and impulsive buying behavior in social commerce. Notably, the variable "social commerce trust" adopted in this study is not a general trust dimension but a second-order construct that includes four common types of trust in social commerce, inspired by Nadeem et al. (2020). Third, the impulsive buying behavior in this study is also a second-order construct that consists of pure impulsive buying, reminder impulsive buying, suggestion impulsive buying, and planned impulsive buying, in accordance with scholarly research references and the selection criteria proposed by Chan et al. (2017). Segmented buying enables a more comprehensive representation of impulsive buying behavior in social commerce, as impulsive buying is not a behavior that exists independently. In practice, this contribution will offer valuable recommendations to social commerce sellers on how to effectively utilize social media celebrities for their endorsement marketing efforts and build long-term relationships with consumers. Additionally, it will provide references for countries where social commerce is lacking today.

2 | THEORETICAL FRAMEWORK

2.1 | Signaling theory

The development of signaling theory was a response to the uneven distribution of information, particularly in situations where parties engaged in dealings have differing levels of access to various types of information (Taj, 2016). Three essential components in signaling theory are the signaler, signal, and receiver (Boateng, 2019). Signalers disclose information about their brand qualities to reassure receivers of their reliability and integrity (Boateng, 2019). They turn this information into signals that are sent to receivers through different means (Boateng, 2019). Signals are thought of as characteristics of items that might be controlled or changed according to a signaler's preferences and can be used to communicate the concealed or restricted quality information of one thing to another (Li et al., 2019), to achieve the desired results (Mavlanova et al., 2016). Hence, information asymmetries might occur in the transmission process, particularly regarding a service provider's attributes and capacity to efficiently serve their customers' demands while distinguishing themselves from other service providers (Connelly et al., 2011). Signaling theory, widely applied in management and marketing fields, serves as a tool to understand the effects of information asymmetry and consumer decision-making processes across a range of situations (Li et al., 2019). In celebrity-customer relationships of social commerce, to reduce information asymmetry and help consumers make more accurate quality judgments, signaling theory has been utilized to describe the kind of signals that celebrities provide to users when information about products is limited (Lu & Chen, 2021).

This study divides the possible antecedents based on the component categories of signaling theory into relational switching alternatives (receiver); relationship benefits, shared values, and parasocial interaction (signal); and opportunistic behavior (signaler). The criteria for categorizing components derive from Boateng (2019). Signalers often provide details about their endorsement features and the effectiveness of signal delivery in an attempt to influence the perceptions of receivers. Their objective is to convince their audience of their trustworthiness and honesty. To achieve this, they transform this information into signals, which are then adeptly communicated to them via multiple media channels. In live streaming commerce, Lu and Chen (2021) equally adopted such categorizing criteria to highlight the roles of signal elements in streamers' physical and value similarity. However, given that live streaming commerce is a multidimensional information delivery process consisting of streaming, live content and audiences; the similarities of physical and value characteristics are insufficient to ascertain the entire signal diversity (Lu & Chen, 2021). On this basis, the well-defined categories allow for a nuanced analysis of the complex dynamics from the signaler to the receiver. It acknowledges that signaling is a multifaceted process influenced by various factors beyond just the content of the signal itself. Also, it will enrich the current literature and further delve into the role of components in signaling theory in social commerce.

2.2 | Commitment-trust theory

Morgan and Hunt (1994) initially proposed the commitment-trust theory to explain how and why long-term commercial relationships originate, fail, or succeed (Mukherjee & Nath, 2007). In this theory, trust

and commitment are crucial mediating variables in relationship marketing between antecedents and results (Yuan et al., 2019); it believes that the productivity, efficiency, and efficacy of behavioral activities, as well as the creation of successful relationships, can be attained only when both relationship commitment and trust are present rather than just one or the other (Cui et al., 2020; Morgan & Hunt, 1994). As critical elements link antecedents and outcomes in relationship marketing, trust is the belief in the other party's dependability and honesty. Morgan and Hunt (1994) argued that mutual trust might assist in lessening relationship vulnerability and increasing relationship commitment. Commitment is defined as a connection that is vital and it requires the greatest amount of effort to keep it going (Gustafsson et al., 2005), such as increasing consumer retention, fostering collaboration, and maintaining relationship continuity. Hence, the effect of trust and relationship commitment is formally identified in this theory.

Researchers have previously adopted the commitment-trust theory to study various fields, laying down a valuable theoretical foundation to explain internet technology and online service usage. For example, Cui et al. (2020) investigated consumer intention in cross-border commerce through the commitment-trust theory and psychological distance perspectives. Chen et al. (2022) emphatically conducted a thorough examination of the intermediary function of relationship commitment and the conditional role of trust in linking the precursors of commitment-trust theory to purchase intentions within social media. Yuan et al. (2019) investigated the impact of trust, commitment, and satisfaction on the success of Internet banking. In social commerce, past studies have rarely explored the components of signaling theory as the antecedents of the relationship commitment and trust in the commitment-trust theory. Given that consumers might find it easier to connect to social media celebrities, these deficiencies are insufficient to reveal the relationships among variables in both theories. Precisely, when consumers align with the shared values of social media influencers and experience difficulty in transitioning to alternative choices, can these consumers cultivate a more robust commitment to their associations with social media celebrities? Similarly, do these shared values and parasocial interactions lead consumers to establish trust in the realm of social commerce, and can opportunistic actions by social media celebrities act as a hindrance to trust formation?

Therefore, this study proposes a conceptual framework by further developing the commitment-trust theory and adopting the concept of social commerce trust into a second-order construct to better comprehend the role of relationship commitment and trust on impulsive buying behavior in social commerce. To be specific, trust in social media refers to trust in the accuracy, reliability, and credibility of information shared on social media platforms. Trust in electronic commerce sites resembles trust in sites' ability to protect personal and financial information, deliver promised goods/services, and handle transactions/disputes ethically and fairly. Trust in social commerce feature illustrates consumer confidence in the security, privacy, and reliability of tools and technologies for transactions on social commerce; and trust in social commerce consumer is defined as confidence in the authenticity and reliability of buyers through social

commerce platforms (Nadeem et al., 2020). As such, given that both social media and electronic commerce are subsets of social commerce, the four reflective first-order constructs encompass not only social commerce itself (i.e., trust in social commerce feature and consumers), but also the trust dimensions of social media (i.e., trust in social media) and electronic commerce (i.e., trust in electronic commerce site). The link between these four first-order constructs and social commerce trust is established by recognizing that trust in each of these domains contributes to an overall sense of trust in social commerce, which is interconnected and interdependent with trust in the overall area (i.e., social commerce trust) influencing trust in others.

2.3 | Impulsive buying

Impulsive buying is initially described as spontaneous, irresistible, and hedonically complex conduct marked by a lack of thought, alternative thinking, and self-control (Beatty & Ferrell, 1998). It typically arises from immediate triggers and occurs spontaneously, often leading to unanticipated purchasing actions (Chung et al., 2017; Loebnitz & Grunert, 2022; Xiang, 2016). As such, stimuli play a pivotal role as precursors in the dynamics of impulse purchasing; these stimuli can encompass factors such as environmental signals, promotional tactics, and individual personality traits (Dholakia, 2000; Redine et al., 2023), as well as products' extrinsic characteristics (Parboteeah et al., 2009). The existing literature based on the possible antecedents as stimuli has been broadly explored in recent years. For example, the role of browsing has been explored by researchers, who have found its positive effect on impulse buying (Zhang et al., 2018; Zheng et al., 2019), such as hedonic and utilitarian browsing. Besides, several studies have investigated website or system quality influencing impulse behavior (Akram et al., 2018; Wu et al., 2016). Also, social interaction between sellers and customers has given enough attention by researchers (Xiang, 2016, p. 4; Zhang et al., 2014). Nevertheless, as far as commitment and trust, past studies have demonstrated insufficient evidence to reveal the effects of consumers' relationship commitment to social media celebrities and social commerce trust in the context of social commerce.

Stern (1962) divides impulsive purchases into four categories: pure, reminder, suggestive, and planned impulse purchases. This classification is the first to categorize impulse buying and has set a precedent for subsequent studies (Beatty & Elizabeth Ferrell, 1998). To be concrete, pure buying refers to purchases motivated by novelty or escape purchases that disrupt a usual spending routine. Reminder buying is triggered by the recollection of knowledge or remembered advertisements. On the other hand, suggestion buying is often viewed as a practical acquisition when consumers encounter a product or service for the first time. Planned buying, meanwhile, is indicative of a deliberate intent to buy, often influenced by the search for and utilization of price discounts and coupon promotions (Zhang et al., 2021). By reviewing the existing literature, studies apart from Zhang et al. (2021) on impulsive buying behavior in social commerce are typically focused on one or two specific dimensions instead of including all the

integrated impulse dimensions. For instance, Chen et al. (2016) investigated pure buying and suggestion buying; Chen and Yao (2018) are more inclined to focus on planned buying. Notwithstanding this, social commerce is an all-encompassing business model that combines various impulsive buying behaviors and is difficult to generalize through a single typology to study. Hence, this study adopts the classification criteria of Stern (Stern, 1962) and includes the four typologies in our study.

3 | HYPOTHESIS DEVELOPMENT

3.1 | Relational switching alternative

Relational switching alternative refers to the degree of selectivity in which consumers terminate the current relationship and develop an alternative. The existence of appealing alternatives poses a risk to the stability of the current relationship (Johnson & Rusbult, 1989; Rusbult, 1983). When individuals' desires can be enormously fulfilled through other options rather than the current one, they might explore a new relationship with alternatives, thereby influencing the commitment to the existing relationships (2006). In social commerce, the fewer switching alternatives illustrate that customers might be willing to spend more time and effort to maintain their current relationships with social media celebrities, as customers have little other choice but to keep the current status. In signaling theory, increments in existing relationships can be considered as signals of reduced commitment; accordingly, declines in signaling may indicate lesser levels of relationship commitment (Connelly et al., 2011). Therefore, this study constructs the following hypothesis:

> **Hypothesis H1.** Relational switching alternative negatively correlates with relationship commitment to social media celebrity.

3.2 | Relationship benefit

Relationship benefit refers to any perceived increase in customer value resulting from commercial relationships (Mukherjee & Nath, 2007); such customer value could result from the nature of affiliation (Mukherjee & Nath, 2007). As signaling theory suggests, consumers tend to be more willing to invest their time, experience and resources in expressing their commitment when they can continually benefit from such affiliation (Boateng, 2019). Prior studies have examined mobile commerce that displays more customized information to meet users' needs; users may realize relational benefits from there, thus enhancing a commitment to service providers (Cui et al., 2020). Given that social media celebrities can equally be regarded as providers in social commerce to some extent where they convey commercial endorsements and propagate brands' benefits to potential customers, therefore, this study constructs the following hypothesis:

> **Hypothesis H2.** Relationship benefits positively correlate with relationship commitment to social media celebrity.

3.3 | Shared values

Shared values refer to the extent to which partners have beliefs in common about what behavior, goals, and policies are important, appropriate, and right (Morgan & Hunt, 1994), representing collaborative values between sellers and customers in social commerce. Consumers with a high degree of shared values might internalize ideals aligned with social media celebrities' norms (Wang et al., 2020). They tend to devote more time and effort toward building sustainable, long-lasting connections with celebrities, thereby establishing a firm commitment. This aligns with the concept of signaling shared values as outlined in signaling theory. Therefore, this study constructs the following hypothesis:

> **Hypothesis H3.** Shared values positively correlate with relationship commitment to social media celebrity.

Kelman (1968) argues that sharing similar values is the critical factor influencing individual attitudes and behaviors. Aligning with signals of shared values in signaling theory, when businesses share similar values with customers, they can benefit from collaborating with customers and promoting information exchange in social commerce (Cui et al., 2020; Wang et al., 2020). When businesses share similar values with customers, they can benefit from collaborating with customers and promoting information exchange in social commerce (Cui et al., 2020; Wang et al., 2020). Increased levels of consumer-business collaboration are associated with consumers' perceptions of shared values and a greater propensity to share information about products and services (Mukherjee & Nath, 2007; Wang et al., 2020). When consumers perceive businesses to share their values, they are likely to assume that businesses will behave in their best interests since such interests align with those of the businesses, resulting in increased trust in social commerce (Wang et al., 2020). Therefore, this study constructs the following hypothesis:

> **Hypothesis H4.** Shared values positively correlate with social commerce trust.

3.4 | Parasocial interaction

Parasocial interaction was first proposed by Horton and Richard Wohl (1956) to describe the imaginary connection that consumers unilaterally create toward social actors in the media. Lo et al. (2022) described it as digital interactions between users and businesses that are

characterized by a sense of reciprocity that includes reciprocal awareness, attention, and adjustment (Boateng, 2019; Lo et al., 2022). Parasocial interaction was found to be correlated with affective states (i.e., trust) of consumers toward social media celebrities and social commerce platforms (Lee & Lee, 2022; Li et al., 2019). Given that parasocial interactions involve continuous engagement and commitment to social commerce; according to signaling theory, the engagement signals consumers' commitment and trust in social commerce (Boateng, 2019; Leong, Hew, et al., 2023; Leong, Ho, et al., 2023). As such, this ongoing interaction reinforces the sense of trust. Therefore, this study constructs the following hypothesis:

> **Hypothesis H5.** Parasocial interaction positively correlates with social commerce trust.

3.5 | Opportunistic behavior

Opportunistic behavior is described as self-interest seeking with deception by Williamson (1975). Mukherjee and Nath (2003) defined it as the degree to which norms are broken and information is distorted. Signaling theory considers opportunistic behaviors as signals, and when such signals increase, they indicate a lack of commitment to the consumers' optimal interests, which can affect the erosion of consumer trust (Connelly et al., 2011). In social commerce, customers will evaluate the likelihood and probable scope of social media celebrities' opportunistic behavior while processing online information, as the possibility of violations, rules, obligations and regulations largely determine customer trust (Lee & Turban, 2001). Social media celebrities' increased likelihood of opportunistic behavior will diminish consumer trust in social commerce transactions (Clay & Strauss, 2000). Consumers do not know whether social media celebrities will deliver the products at all or if they will be of lower quality than promised (Klang, 2001). Therefore, this study constructs the following hypothesis:

> **Hypothesis H6.** Opportunistic behavior negatively correlates with social commerce trust.

3.6 | Relationship commitment to social media celebrity

Relationship commitment to social media celebrity refers to the belief of consumers in maintaining and ensuring a sustainable relationship with social media celebrities (Morgan & Hunt, 1994). Consumers have a long-term mindset regarding relationships that they desire to rely on and grow into in the future (Rusbult et al., 1999). They also have psychological attachments to their relationships since the advantage of remaining in the relationship is reciprocal, thus the positive aspects are inextricably linked to the relationship (Li et al., 2006). In social commerce, if consumers feel strong connections to social media celebrities as endorsers because of

previous experiences, such a relationship is extremely likely to influence their impulsive buying behavior (Brown et al., 2012; Li et al., 2006; Poddar & Donthu, 2013). Therefore, this study constructs the following hypothesis:

> **Hypothesis H7.** Relationship commitment to social media celebrity positively correlates with impulsive buying behavior.

3.7 | Social commerce trust

The perception of uncertainty in relationships is reduced when there is a high level of trust (Mayer et al., 1995). When individuals' confidence in one another grows, they are more inclined to take chances in their relationship, be satisfied with it, and rely on one another (Wieselquist et al., 1999). In turn, the subjective feeling of commitment to the partnership will be strengthened because of this increasing dependency (Li et al., 2006; Morgan & Hunt, 1994). Therefore, this study constructs the following hypothesis:

> **Hypothesis H8.** Social commerce trust positively correlates with relationship commitment to social media celebrity.

Social commerce trust arises from one party's perception of the other's competency, honesty and goodwill (Mayer et al., 1995). When one perceives a lack of trustworthiness and confidence in another, one's motivation to remain in the relationship is reduced (Li et al., 2006). Trust toward social media, electronic commerce sites, social commerce features, and social commerce customers may assist the perceived social complexity and vulnerability in the social commerce scenario (Lu & Chen, 2021). Prior studies on e-commerce relationships have shown that trust positively impacts purchase intention (Gefen & Straub., 2003; Pavlou, 2003). Therefore, this study constructs the following hypothesis:

> **Hypothesis H9.** Social commerce trust positively correlates with impulsive buying behavior.

3.8 | Conceptual model

The conceptual model is illustrated in Figure 1.

4 | METHODS

4.1 | Research design and measure

This study adheres to a positivist framework and employs quantitative methods for investigating the proposed research questions. Data collection is conducted through self-administered online surveys, specifically using Google Forms as the platform. Given the increasing growth
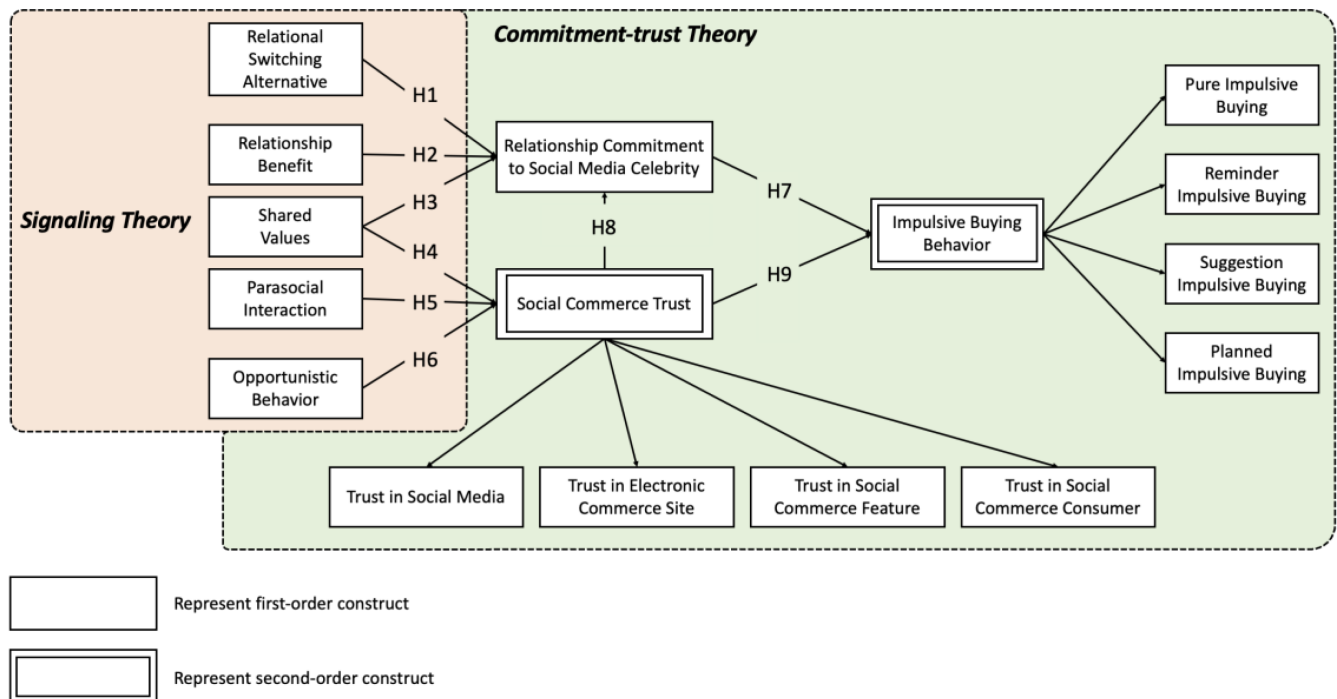
Represent first-order construct

Represent second-order construct

FIGURE 1 Conceptual model.

of the social commerce environment in Malaysia and subsequently led by potential business opportunities with high internet penetration rates, this study focused on social commerce users in Malaysia to explore their tendencies toward impulsive buying behaviors (Adipradana et al., 2023; Boxme, 2021).

Two pieces make up the questionnaire survey. Demographic questions are included in Section A, which aims to gather data on how respondents use social commerce. Section B comprises measurements of variables to assess respondents' perceptions of the constructs. All variables in Section B are conducted using questionnaire scales that have been pre-validated in prior research. These scales have been slightly modified to fit the specific context of this study. A 7-point Likert scale is used to assess each item, ranging from "strongly disagree" to "strongly agree," as shown in the Appendix.

4.2 | Sample and data collection

This study adopted a non-probability quota sampling as a strategy to collect data. It refers to intentionally selecting individuals as the sample to meet a pre-set quota of certain characteristics. Considering that this study primarily explores the impulsive buying of Malaysian consumers in social commerce, consumers with experience in social commerce platforms involving social media and e-commerce are the target sample. To ensure the validity and reliability of the main study, a preliminary pilot test was carried out prior to the extensive data collection phase. The purposes of the pilot test encompass, To begin with, participants were assigned the task of filling out the

questionnaire. Following this, they were asked to give their insights on the flow and clarity of the questionnaire items. It was crucial to confirm that the concepts presented were both clear and comprehensible to the respondents. Subsequently, the duration of time that participants took to complete the questionnaire was carefully monitored. This measure was taken to avoid an overly lengthy process that might result in boredom or loss of focus among the respondents. Third, the pilot test also scrutinized the stability of the questionnaire instrument, along with the ease of generating and tabulating results from it. Following the feedback received from the volunteers, definitions for each construct were incorporated into the questionnaire to improve the participant's comprehension of the terms used, as illustrated in Table 2. Upon the conclusion of the pilot study, each volunteer received an RM 5 electronic stipend. Following the pilot test, the main study proceeded with its extensive data collection phase. This stage successfully gathered responses from 295 valid participants. Detailed demographic information regarding the profile of respondents is shown in Table 3.

4.3 | Statistical analysis

This study used SmartPLS (version 3.3.3) and partial least squares structural equation modeling (PLS-SEM) in the first step of the evaluation of the suggested conceptual model. For complex model prediction and theory construction, the PLS-SEM is initially more successful than covariance-based SEM (CB-SEM) (Ooi et al., 2020). Second, PLS-SEM only marginally constrains the sample size and non-normal

TABLE 2 Construct, definition, and source.

Constructs	Definition	Number of items	Sources
Relational switching alternative (RSA)	RSA refers to the degree of selectivity in which consumers terminate the current relationship and develop an alternative	3	(Li et al., 2006)
Relationship benefit (RB)	RB refers to any perceived increase in customer value resulting from commercial relationships.	4	(Mukherjee & Nath, 2007)
Shared value (SV)	SV refers to the extent to which partners have beliefs in common about what behavior, goals, and policies are important, appropriate, and right.	3	(Mukherjee & Nath, 2007)
Parasocial interaction (PI)	PI refers to the imaginary connection that consumers create unilaterally toward social actors in the media.	3	(Hsu et al., 2014; Wang et al., 2021)
Opportunistic behavior (OB)	OB refers to the degree to which norms are broken and information is distorted.	2	(Li et al., 2006; Mukherjee & Nath, 2007)
Relationship commitment to social media celebrity (RC)	RC refers to the belief in maintaining and ensuring a long-term relationship with social media celebrities.	4	(Chen & Yao, 2018; Li et al., 2006)
Trust in social media (TSM)	TSM refers to trust in the accuracy, reliability, and credibility of information shared on social media platforms.	2	(Nadeem et al., 2020)
Trust in electronic commerce site (TECS)	TECS refers to the trust in e-commerce sites' ability to protect personal and financial information, deliver promised goods/services, and handle transactions/disputes ethically and fairly.	2	(Hsu et al., 2014; Nadeem et al., 2020)
Trust in social commerce feature (TSCF)	TSCF refers to consumer confidence in the security, privacy, and reliability of tools and technologies for transactions on social commerce.	2	(Nadeem et al., 2020)
Trust in social commerce consumer (TSCC)	TSCC refers to confidence in the authenticity and reliability of buyers through social commerce platforms.	3	(Nadeem et al., 2020)
Pure impulsive buying (PRB)	PRB refers to a type of unplanned and spontaneous purchase decision, made without any prior consideration.	3	(Zhang et al., 2021)
Reminder impulsive buying (RMB)	RMB refers to a type of impulsive buying that is triggered by reminders or cues.	3	(Zhang et al., 2021)
Suggestion impulsive buying (SGB)	SGB refers to a type of impulsive buying that is influenced by the recommendations or suggestions of others.	3	(Zhang et al., 2021)
Planned impulsive buying (PIB)	PIB refers to a type of impulsive buying that is the result of a preplanned, deliberate decision to purchase, but is executed impulsively at the time of the purchase.	2	(Zhang et al., 2021)

distributions (Lew et al., 2020). Given that Mardia's multivariate skewness ($\beta = 17.12$) and kurtosis ($\beta = 184.09$) both had p-values less than .001, the analysis proved that the data is not multivariate normal (Loh, Lee, Tan, Hew, & Ooi, 2022; Loh, Lee, Tan, Ooi, & Fosso Wamba, 2022). As a result, it was determined that PLS-SEM would be more appropriate for this study than CB-SEM. Besides, this study also adopts the G*power to examine whether the collected sample size is rationalized based on the total population. By establishing an effect size at 0.15, an alpha level at .05, and a power level at .95, the G*Power analysis indicated that the minimum required sample size is 270. It confirms that the sample size of 295 used in this study is not only statistically powerful but also effectively representative.

TABLE 3 Respondent profile.

Constructs	Items	Number	Percentage (%)
Gender	Female	214	72.80
	Male	80	27.20
Age	20 or below	20	6.80
	21–25	180	61.20
	26–30	40	13.60
	31–35	42	14.30
	36–40	6	2.00
	41–45	6	2.00
	46–50	0	0.00
	51 or above	0	0.00
Education level	High school or below	12	4.10
	Diploma	20	6.80
	Bachelor	138	46.90
	Master	100	34.00
	PhD	24	8.20
Monthly income	Less than RM2500	78	26.50
	RM2500-RM3169	18	6.10
	RM3170-RM3969	22	7.50
	RM3971-RM4849	48	16.30
	RM4850-RM5879	28	9.50
	RM5880-RM7099	30	10.20
	RM7110-RM8699	22	7.50
	RM8700-RM10959	12	4.10
	RM10960-RM15039	14	4.80
	More than RM15039	22	7.50
Social commerce purchase experience	Less than 6 months	66	55.40
	6 months—1 year	56	19.00
	1–1.5 years	16	5.40
	1.5–2 years	88	29.90
	More than 2 years	68	23.10
Social commerce platform types[a]	Instagram	242	82.30
	Facebook	108	36.70
	TikTok	66	22.40
	Twitter	74	25.20
	Pinterest	6	2.00
	Others	25	8.50
How many social media accounts/platforms do you own?	Less than two types	64	21.80
	Two to three types	138	46.90
	Four to five types	62	21.10
	More than five types	64	21.80
Social commerce purchase frequency	One to three times	120	40.80
	Four to six times	108	36.70
	Seven to nine times	24	8.20
	More than nine times	42	14.30

[a]Respondents are allowed to choose for more than one items.

4.4 | Common method variance

As with any single cross-sectional survey, common method variance (CMV) might occur (Binwani & Ho, 2019). Accordingly, this study applied appropriate procedural and statistical remedies. The survey employed simple language and brief questions (Manzoor et al., 2021; Podsakoff et al., 2003) and avoided unfamiliar terminology (Lo, 2022). Harman's single-factor method test indicated that the extraction sums of squared loadings are 31.233%, which is far below the benchmark (50.00%) (Podsakoff et al., 2003), demonstrating that CMV is not an issue.

4.5 | Outer measurement model assessment

Table 4 reveals that, with the exception of OB, PI, and TSM, Cronbach's alpha values for all constructs ranged from .751 to .917. It indicates strong internal consistency, as these values surpass the accepted benchmark of 0.7 (Chin et al., 2003; Lau et al., 2021; Wong et al., 2020). The Cronbach's alphas for OB, PI, and TSM are between .616 and .660 and could be viewed as acceptable internal consistency as they were above the minimum threshold proposed by Peterson (1994). Confirming the dependability of the items, the composite reliabilities are all between 0.804 and 0.948, which is much higher than the benchmark of 0.7 (Ooi et al., 2020). Furthermore, the average variance extracted (AVE) for each construct exceeds 0.5, signifying that the convergent validity of our measurement model is adequately established (Chin et al., 2003). Factor loadings are all higher than 0.7 except for OB1, SGB2, and TSCC1, which are above 0.6. Fong and Law (2013) proposed that if the AVE was above 0.5, factor loadings for specific items between 0.4 and 0.7 are also acceptable, so OB1, SG2, and TSCC1 are retained. Discriminant validity was verified through the evaluation of the Fornell–Larcker criterion. As depicted in Table 5, the square roots of the AVE for each construct were found to be greater than the correlation coefficients among the latent variables (Fornell & Larcker, 1981).

4.6 | Inner structural model assessment

Considering the presence of two second-order constructs within our conceptual framework, we conducted an analysis on these higher-order variables utilizing the factor scores derived from the first-order constructs, specifically focusing on social commerce trust and impulsive buying behavior (Chin et al., 2003; Leong, Hew, et al., 2023; Leong, Ho, et al., 2023; Zhang et al., 2021). In light of the causal relationship, we treated them as second-order reflective constructs. This approach was based on the understanding that any alteration in the construct would correspondingly result in changes in their respective dimensions, such as TSM, TECS, TSCF, TSCC or PRB, RMB, SGB, and PLB (MacKenzie et al., 2011). The inclusion of second-order constructs increases the probability of multicollinearity among first-order indicators (Wang et al., 2022). All the variance inflation factors values

TABLE 4 Loading, Cronbach's alpha, CR, and AVE.

Constructs	Items	Loadings	Alpha	CR	AVE
RSA	RSA1	0.931	.793	0.857	0.669
	RSA2	0.761			
	RSA3	0.750			
RB	RB1	0.805	.805	0.872	0.63
	RB2	0.779			
	RB3	0.767			
	RB4	0.823			
SV	SV1	0.883	.771	0.867	0.686
	SV2	0.815			
	SV3	0.783			
PI	PI1	0.855	.844	0.905	0.761
	PI2	0.877			
	PI3	0.885			
OB	OB1	0.625	.660	0.804	0.682
	OB2	0.987			
RC	RC1	0.824	.838	0.892	0.674
	RC2	0.855			
	RC3	0.771			
	RC4	0.831			
TSM	TSM1	0.864	.616	0.839	0.722
	TSM2	0.835			
TECS	TECS1	0.940	.859	0.934	0.876
	TECS2	0.932			
TSCF	TSCF1	0.902	.811	0.913	0.84
	TSCF2	0.931			
TSCC	TSCC1	0.698	.760	0.859	0.673
	TSCC2	0.896			
	TSCC3	0.853			
PRB	PRB1	0.937	.917	0.948	0.859
	PRB2	0.95			
	PRB3	0.892			
RMB	RMB1	0.815	.839	0.904	0.758
	RMB2	0.914			
	RMB3	0.880			
SGB	SGB1	0.875	.751	0.856	0.667
	SGB2	0.671			
	SGB3	0.886			
PLB	PLB1	0.872	.657	0.854	0.745
	PLB2	0.854			

range between 1.029 and 2.339, which is far lower than the threshold of 3, thus indicating that there are no multicollinearity issues (Fong & Law, 2013; Wong et al., 2020) (Table 6).

Additionally, this study evaluated the structural model to elucidate the path relationships and its explanatory power, by employing a bootstrapping procedure in the analysis (Ho et al., 2017; Moedeen

TABLE 5 Fornell–Larcker criterion.

	OB	PI	PLB	PRB	RB	RC	RMB	SGB	SV	TECS	TSCC	TSCF	TSM	RSA
OB	0.826													
PI	−0.368	0.872												
PLB	0.029	0.425	0.863											
PRB	0.029	0.158	0.213	0.927										
RB	−0.385	0.561	0.335	0.357	0.794									
RC	−0.152	0.357	0.176	0.399	0.617	0.821								
RMB	−0.018	0.268	0.325	0.683	0.344	0.472	0.871							
SGB	−0.002	0.427	0.415	0.452	0.326	0.472	0.613	0.817						
SV	−0.386	0.663	0.319	0.35	0.58	0.39	0.334	0.398	0.828					
TECS	−0.246	0.527	0.241	0.329	0.563	0.446	0.431	0.437	0.579	0.936				
TSCC	−0.215	0.538	0.279	0.422	0.575	0.487	0.332	0.392	0.532	0.635	0.82			
TSCF	−0.334	0.638	0.264	0.3	0.516	0.446	0.354	0.444	0.74	0.754	0.654	0.917		
TSM	−0.26	0.512	0.231	0.449	0.553	0.56	0.582	0.557	0.501	0.612	0.597	0.624	0.85	
RSA	0.028	0.075	0.049	−0.095	−0.095	−0.203	−0.121	−0.05	0.005	−0.206	−0.113	−0.072	−0.009	0.818

Note: The square root of the extracted average variance makes up the diagonal components (italics).

TABLE 6 Variance inflation factor (VIF).

	IBB	OB	PI	RB	RC	SCT	SV	RSA
IBB								
OB						1.207		
PI						1.832		
RB					1.835			
RC	1.465							
SCT	1.465				2.339			
SV					2.051		1.861	
RSA					1.029			

et al., 2023). The results demonstrate that all the hypotheses except H7 and H10 are statistically significant. H7 and H10 were not supported as the P values were more than 0.05. The results are presented in Table 7 and Figure 2.

4.7 | The predictive relevance and effect size

The effect sizes of the outcome variables were examined using the f^2. High, medium, and small impacts were defined by thresholds of 0.35, 0.15, and 0.02, respectively (Cohen, 1992). Tan and Ooi (2018) discovered no effect for values less than 0.02. All of the f^2 values were between 0.000 and 0.249 in Table 8, which indicates that the effect sizes vary from none to moderate. All of the Q^2 values range between 0.081 and 0.668, that is, greater than zero, indicating that the endogenous components in the conceptual model have predictive importance (Table 9). To address the predictive model assessment in PLS-SEM, this study also made use of a PLS Predict developed by Shmueli et al. (2019). It was stated that the LM has a good predictive performance since none of the PLS indicators had a lower root mean squared error value than the LM (Leong et al., 2019). The model explains 37.5, 53.6, and 44.8% of the variance in IBB, SCT, and RC, separately.

4.8 | Artificial neural network analysis

Artificial neural network (ANN) is a complex system composed of simple processing units with capabilities to retain learned knowledge and make it usable, which has been shown to outperform traditional regression methods as a type of machine learning (Lo et al., 2022). Three ANN models (Models A–C) are constructed that represent RC, SCT, and IBB, separately. Table 10 illustrates that the average scores for all the Models fall between 0.782 and 0.943, indicating a reasonable degree of predictive precision. Moreover, this study employs sensitivity analysis to ascertain the significance of external variables in relation to internal variables. It is achieved by normalizing the data, which aids in ranking the external constructs according to their importance. As shown in Table 11, the results showed that RB (100% normalized relative importance) is the most significant predictor in RC,

followed by SCT (91.909%) and RSA (77.263%) in Model A. Model B showed that SV (100%) is the most critical predictor in SCT, followed by PI (63.080%). In Model C, the most significant predictor in IBB is SCT (100%), and the second is RC (94.672%). Compared with the path coefficient in PLS-SEM, all results of normalized relative importance in ANN are consistent with the former ranking.

5 | DISCUSSION

First, continuing previous studies on relationship commitment and trust (Chen et al., 2022; Li et al., 2006; Mukherjee & Nath, 2007), this study constructs a strong link based on signaling theory between three signaling components (i.e., receiver, signal and signaler) and commitment-trust. This study found a significant effect of relational switching alternative and relationship benefit on relationship commitment to social media celebrity (H1 and H2 are supported), indicating that consumers who construct relationships with celebrities that are difficult to replace and benefit from this relationship are likely to be willing to invest more to strengthen the degree of commitment in their relationship with celebrity endorsement. In addition, shared values and parasocial interaction significantly impact social commerce trust (H4 and H5 are supported). When celebrities and consumers hold similar shared values, consumers will increase their trust in the products or services endorsed by celebrities. Similarly, with more telepresence and social presence made possible by in-the-moment endorsement and rich media, the sense of parasocial interaction has become even more potent in social commerce buying. Therefore, this study proved that relational switching alternatives, relationship benefits, shared values, and parasocial interaction are essential prerequisites for influencing relationship commitment to social media celebrity and social commerce trust in impulsive buying, which is consistent with previous studies. Notably, the relational switching alternative is an innovative variable in contrast to previous research on commitment-trust and signaling theory, which will contribute potential theoretical significance to future studies.

Second, the findings indicate a lack of significant correlation between shared values and commitment to relationships with social media celebrities, as well as between opportunistic behavior and trust in social commerce (H3 and H6 are not supported). Although result differs from the findings of (Cui et al., 2020; Mukherjee & Nath, 2007), who found significant effects between them, suggesting that the role of shared values and opportunistic behavior in influencing relationship commitment to social media celebrity and social commerce trust is seldom a significant prerequisite. Malaysian consumers are friendlier and more inclusive in social commerce buying, which despite having different shared values from celebrities, apparently does not deter consumers from building committed relationships with them.

Third, this study found that relationship commitment to social media celebrity and social commerce trust positively influence impulsive buying behavior (H7 and H9 are supported), which is congruent with prior research (Chen et al., 2022; Lu & Chen, 2021; Xiang, 2016).

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TABLE 7 Outcome of structural model assessment.

Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	p-Values	Bias corrected confidence interval		Remarks
OB— > SCT[ns]	−0.016	−0.021	0.054	0.288	.773	−0.132	0.081	Not significant
PI— > SCT[***]	0.330	0.329	0.047	6.953	.000	0.237	0.424	Significant
RB— > RC[***]	0.450	0.445	0.056	8.014	.000	0.321	0.544	Significant
RC— > IBB[***]	0.314	0.313	0.049	6.446	.000	0.214	0.404	Significant
SCT— > IBB[***]	0.378	0.378	0.06	6.266	.000	0.258	0.499	Significant
SCT— > RC[***]	0.322	0.317	0.063	5.136	.000	0.188	0.436	Significant
SV— > RC[ns]	−0.092	−0.084	0.071	1.305	.192	−0.217	0.065	Not Significant
SV— > SCT[***]	0.464	0.461	0.057	8.185	.000	0.346	0.562	Significant
RSA— > RC[*]	−0.124	−0.134	0.058	2.145	.032	−0.23	−0.041	Significant

Abbreviation: ns, not supported.
*Significant at $p < .05$ level.
***Significant at $p < .01$ level.
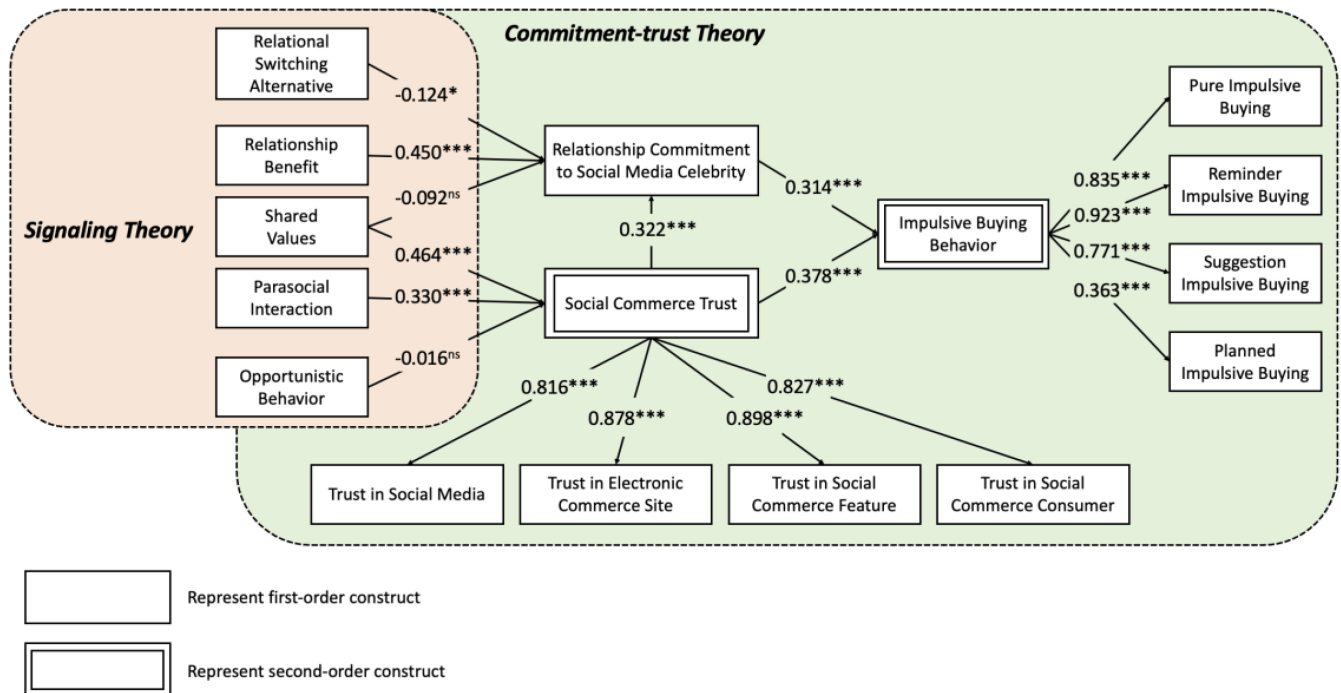
FIGURE 2 Results of hypothesis test.

TABLE 8 Effect size.

Constructs	IBB	OB	PI	RB	RC	SCT	SV	RSA
IBB								
OB						0		
PI						0.128		
RB					0.2			
RC	0.108							
SCT	0.156				0.08			
SV					0.008		0.249	
RSA					0.027			

TABLE 9 Predictive relevance.

Endogenous construct	SSO	SSE	Q^2 (=1-SSE/SSO)	Predictive relevance	R^2
IBB	2058	1618.146	0.214	Q2 > 0	.371
OB	588	588			
PI	882	882			
RB	1176	1176			
RC	1176	832.342	0.292	Q2 > 0	.441
SCT	2352	1610.143	0.315	Q2 > 0	.531
SV	882	882			
RSA	882	882			

TABLE 10 RMSE values.

	Model A		Model B		Model C	
	Input: RSA, RB, SCT		Input: SCT		Input: IBB	
	Output: RC		Output: SV, RI		Output: RC, SCT	
Neural network	Training RMSE	Testing RMSE	Training RMSE	Testing RMSE	Training RMSE	Testing RMSE
ANN1	0.699	0.819	0.881	0.912	0.750	0.752
ANN2	0.840	0.853	0.781	0.742	1.020	0.985
ANN3	0.810	0.782	0.798	0.799	0.966	1.023
ANN4	0.871	0.952	0.837	0.857	0.810	1.001
ANN5	0.706	0.715	0.803	0.769	0.925	0.922
ANN6	0.753	0.820	0.831	0.654	0.773	0.682
ANN7	0.800	0.723	0.812	0.882	0.902	0.852
ANN8	0.775	0.714	0.855	0.826	0.867	0.820
ANN9	0.775	0.694	0.834	0.814	0.997	1.171
ANN10	0.795	0.850	0.834	0.878	0.973	1.225
Mean	0.782	0.792	0.827	0.813	0.898	0.943
SD	0.054	0.082	0.029	0.077	0.096	0.174

TABLE 11 ANN results and comparison to PLS-SEM.

PLS paths	Original sample (O)/path coefficient	ANN results: Normalized relative importance (%)	Ranking (PLS-SEM) (based on path coefficient)	Ranking (ANN) (based on normalized relative importance)	Remark
Model A (*Output*: RC)					
RSA— > RC	−0.124	77.263%	3	3	Match
RB— > RC	0.450	100.000%	1	1	Match
SCT— > RC	0.322	91.909%	2	2	Match
Model B (*Output*: SCT)					
SV— > SCT	0.464	100.000%	1	1	Match
PI— > SCT	0.330	63.080%	2	2	Match
Model C (*Output*: IBB)					
RC— > IBB	0.314	94.672%	2	2	Match
SCT— > IBB	0.378	100.000%	1	1	Match

The findings also extend previous findings of the prerequisites for impulsive buying behavior (Hu et al., 2019; Park et al., 2012), confirming that commitment-trust is also a critical component in addition to social influence, browsing, and enjoyment. Finally, this study constructs higher-order variables (Ming et al., 2021) for social commerce trust and impulsive buying behavior, which can help researchers and

sellers examine social commerce trust and impulsive buying behavior subdivisions in more detail.

5.1 | Theoretical contributions

This study makes a valuable contribution to the understanding of signaling theory, commitment-trust theory, and theoretical integration from multiple angles. To be more specific, the study delves into five crucial variables, namely relational switching alternatives, relationship benefits, shared values, parasocial interactions, and opportunistic behaviors, through the lens of signaling theory. Also, this study breaks down these variables into three key components: the receiver, the signal, and the signaler. This in-depth exploration serves to both widen and deepen the comprehension of signaling theory. Furthermore, these five variables were developed with a focus on the characteristics of social media celebrity endorsements in the realm of social commerce. It is conducive to enhancing the applicability and transferability of signaling theory in the context of social commerce and celebrity endorsements, thus making it even more relevant and insightful.

Second, compared with the original elements of commitment and trust within commitment-trust theory, this study takes a step forward by extending these components to align with the specific context of social commerce. This study introduces two novel elements: consumers' relationship commitment to social media celebrities and social commerce trust. Hence, the extension adds depth and relevance to the theory, making it more applicable and transferable within the social commerce landscape. Furthermore, this study goes beyond merely presenting these two components independently. It also delves into the intricate interplay between them, shedding light on the inner workings of the theory. This examination proves valuable in terms of understanding how relational strength and transfer play a role in shaping the theory's dynamics. Moreover, it is important to note that the concept of social commerce trust and impulsive buying, which this study introduces as a second-order construct, allows for a more nuanced categorization. This finer level of categorization contributes to a more comprehensive and detailed understanding of the theoretical and conceptual implications and applications in the social commerce domain.

Besides, this study builds a theoretical model of social commerce impulsive buying according to signaling theory and commitment-trust theory, which is grounded not only in the marketing field but also in psychology and media literature, thus shedding light on such behavioral intention (Kautish et al., 2019; Paul et al., 2016). Specifically, by explicitly investigating this behavior on social media celebrity endorsement in the social commerce environment, this study expands on earlier studies on impulsive buying. Social commerce has recently received more attention from researchers as a relatively new e-commerce. Few studies have empirically tested the role that social media celebrity signals have in consumer behaviors, and limited studies on social commerce have looked at how celebrity endorsements influence marketing strategies. Therefore, the theoretical model that

the study proposes can fill the research gaps and further confirm that celebrity signals with a high degree of relationship benefit, shared value and parasocial interaction can facilitate and encourage customers to make impulsive buying online. The findings represent a theoretical innovation that builds upon the previous studies of Kim and Park (2019), Xiang (2016), Zafar et al. (2021), and Zhang et al. (2014). In addition, as the deficiencies highlighted in the literature review, past studies on impulsive buying either examined endogenous features (i.e., individual characteristics) or exogenous features (i.e., website characteristics, browsing characteristics). The relationship between social media celebrity signals and impulsive buying behavior has not been extensively explored. Apart from validating established relationships previously, this study reveals novel correlates of the drive to impulsive buying, such as relational switching alternatives and parasocial interaction, which is crucial in boosting customers' propensity for impulsive buying.

5.2 | Practical contributions

This study can provide valuable and insightful practical guidance to social media celebrities and social commerce sellers. First, social media celebrities should ensure that the endorsement in social commerce is non-alternative, beneficial, valued, and enjoyable to induce customers' impulsive buying by enhancing relationship commitment and trust (Hu et al., 2023; Özyörük, 2022). For example, a compelling narrative can draw audiences into the atmosphere. Therefore, social media celebrities may stimulate trust by providing shared values to products or services from a consideration of audiences' own and immersive interaction, to forge a closed and long-term developed relationship, thus activating consumers' impulsive buying in social commerce (Buchanan et al., 2023). Besides, given that celebrities have authority and popularity in the internet community, they need to consider whether their endorsement of a product or service will actually benefit the consumers, for example, getting discounts or better after-sales service, since such relational benefits can be converted into relational commitments that stimulate impulsive buying (Iva Adeline et al., 2023; Koohang et al., 2023; Loh, Lee, Tan, Hew, & Ooi, 2022; Loh, Lee, Tan, Ooi, & Fosso Wamba, 2022). As for enhancing consumers' parasocial interaction, social media celebrities and sellers can adopt specific aspects on social media or e-commerce platforms, including recommended styles or buyer showcases, to foster a pleasurable shopping experience and increase visual attractiveness.

Second, considering that the relationships between the celebrity–audience and audience–audience can encourage their propensity for spontaneous purchases, sellers should offer comprehensive interactive elements that unite celebrities and audiences to interact with each other, similar to talking with close friends (Dash et al., 2021; Paul & Bhakar, 2018). In terms of building a non-alternative relationship, sellers should think about how to create matching tactics to respond to the fierce competition and build long-lasting connections with customers in light of the rising popularity of social commerce and the growing investment of social media celebrity endorsements in

impulsive purchasing (Brakus et al., 2009; Ng et al., 2022). For example, sellers can provide incentives to promote the sharing of high-quality information on social commerce platforms to retain consumers and cultivate customer loyalty, such as monetary (i.e., discount and bonus points) and non-monetary incentives (i.e., grades) (Mohd Johan et al., 2022).

In addition, although this study reveals that shared value and opportunistic behavior are not critical in the construction of relationship commitment and social commerce trust, it is not implied that sellers or celebrities behave unethically in business to endorse products or stimulate consumer purchases. They must ensure that the products or services they endorse are of reliable quality, truthfully advertised and have guaranteed after-sales service, especially for consumers who are sensitive to the impact of information.

5.3 | Limitations and future research directions

While this study offers considerable theoretical and practical insights, there are certain limitations that could pave the way for future research. First, due to socioeconomic and cultural variations, the results of this research are only drawn from one nation (i.e., Malaysia), which may restrict the applicability of the findings to other countries (Djafarova & Rushworth, 2017). According to the cultural theory, the findings of a single nation might be influenced by specific sociocultural factors inherent to that particular context, such as values, norms, beliefs, and historical traditions that are unique to Malaysia (Mars & Weir, 2020). Consequently, the applicability of the research findings to different countries and cultural contexts may be restricted. Additionally, cultural theory proposes that varying cultures can influence disparities in consumer consumption patterns and behavioral intentions. Hence, when discussing the limitations of this study and the need for future research, it is pertinent to suggest that future studies should adopt a cross-cultural approach; through comparing results across different nations or cultures, researchers can explore potential discrepancies in the proposed path model. For instance, researchers can examine whether the results are equally applicable to Southeast Asian countries with similar cultural backgrounds or to Western countries with significant cultural variations.

Second, this study has a cross-sectional structure. A drawback of using cross-sectional data to examine the causality of relationships in the study model is that no firm conclusions can be made (Chawla & Kumar, 2022). Experimental and longitudinal investigations may give a solid inference of causation and enhance comprehension of the directions of causality. Nonetheless, because of limited time and resources, cross-sectional studies are utilized as exploratory vehicles to identify interest connections and authentic behavior and intention were not evaluated in this current work. Besides, apart from cross-sectional studies, social commerce remains an unexplored field for systematic literature review and meta-analysis (Balachandran et al., 2022; Hoh et al., 2022). As such, in addition to the suggestions for using longitudinal investigations to enhance the inference of causality in social commerce, further studies agendas should also focus on exploring

specific subjects for systematic literature review and meta-analysis to synthesize the findings from multiple studies and provide a more comprehensive understanding of the phenomenon in social commerce. Third, prior researchers have shown that consumers' behavioral intentions vary among social commerce platforms. Hence, future studies would benefit from comparing consumer attitudes and behaviors across specific social media or e-commerce platforms (Dang et al., 2023; Theadora et al., 2022). Fifth, given the different influences and publicity of traditional and social media celebrities, future studies are suggested to adopt a comparative study of them as this study mainly focused on internet celebrities, thus providing comprehensive insights and guidance to social commerce sellers.

CONFLICT OF INTEREST
The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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APPENDIX: QUESTIONNAIRE INSTRUMENT

Construct	Instrument	Source
Relational switching alternative	1: It is attractive to buy substitute goods that other celebrities endorse. 2: This product celebrity-endorsed is inferior to a substitute good. 3: Another substitute good that I am aware of comes close to being perfect. 4: A substitute good might readily meet my requirements.	(Li et al., 2006)
Relationship benefits	1: I am able to reduce the time to get what I want from this relationship. 2: I am able to reduce the effort to get what I want from this relationship. 3: I am able to get what I want more easily from this relationship than in other relationships. 4: I am able to receive credible and customized services from this relationship.	(Wang et al., 2021)
Shared values	1: Celebrity shares the goal of assisting users in answering enquiries about products. 2: Celebrity shares the same goal of promoting shopping easier for one another. 3: Users and celebrities have the same value that pursuing shopping rewards is pleasurable, that is, users can get a more affordable price than usual, and celebrities can boost sales through endorsements.	(Lu & Chen, 2021)
Parasocial interaction	1: I may successfully communicate with celebrities about products or services, which will help me to have a more comprehensive overview of the products or services. 2: I may interact with other users when I use social commerce platforms. 3: I am excited to take part in social commerce platforms with excellent interactivity.	(Aw and Labrecque, 2020)
Opportunistic behavior	1: The celebrity somewhat changes the facts slightly in the relationship. 2: The celebrity promises to do things without really accomplishing them later in the relationship. 3: The celebrity fails to give me the assistance it is obligated to offer in the relationship. 4: The celebrity breaches formal or informal agreements in the relationship for its own goals.	(Li et al., 2006)
Relationship commitment	1: I would like to see the relationship with the celebrity around for a long time. 2: My relationship with the celebrity is worth putting up all my effort to sustain. 3: I will be very disappointed if the relationship goes away in the future. 4: I have a sense of belonging to the relationship with the celebrity.	(Li et al., 2006)
Social commerce trust	1: Social media may be relied upon as a reliable source of information. 2: Social media's performance consistently exceeds my expectations. 3: Online shopping platform may be viewed as a trustworthy e-commerce site. 4: Online shopping platform is a credible e-commerce site. 5: Social commerce features might be considered excellent features. 6: Social commerce functions are dependable. 7: I feel that customers on social commerce platforms are trustworthy. 8: I feel that customers on social commerce sites are genuine. 9 I feel that customers on social commerce platforms give useful feedback.	(Nadeem, 2016; Nadeem et al., 2020)
Impulsive buying behavior	1: I have the impulse to buy things other than or in addition to my specified purchasing aim while I am watching celebrity endorsements 2: When I am watching celebrity endorsements, I want to buy products unrelated to my precise buying purpose. 3: When I am watching celebrity endorsements, I strongly urge to purchase items unrelated to my precise buying purpose. 4: When the information from celebrity endorsements reminds me of things that meet my needs, I feel a desire to acquire them. 5: When commercial advertisements from celebrity endorsements remind me of things that match my wants, I feel compelled to buy them. 6: When the precise information from celebrity endorsements reminds me of the things that suit me, I feel a desire to acquire them.	(Zhang et al., 2020)

(Continues)

Construct	Instrument	Source
	7: When I examine a product on social commerce platforms for the first time, I feel compelled to purchase it if it is of excellent quality.	
	8: When I view a product on social commerce platforms for the first time, the practical function is a big motivation for me to want to purchase it.	
	9: When I initially look at a product on social commerce platforms, I am readily enticed to purchase it because of its function presentation.	
	10: Even though I watch celebrity endorsements with a certain purchase in mind, I am prone to purchasing other products that provide a discount or a better deal.	
	11: Even though I watch celebrity endorsements with a certain purchase in mind, I am compelled to purchase other products on sale.	
	12: Even though I watch celebrity endorsements with a certain purchase in mind, I have a want to buy additional products that are dependent on the like.	