

Understanding the impact of online customers' shopping experience on online impulsive buying: A study on two leading E-commerce platforms

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ABSTRACT

Research offers some indication that the online customers' shopping experience (OCSE) can be a strong predictor of online impulsive buying behavior, but there is not much empirical support available to form a holistic understanding; whether, and indeed how, the effects of the OCSE on online impulsive buying behavior are affected by customers' attitudinal loyalty and self-control are not well understood areas of research. In this study, we examine how functional and psychological dimensions of the OCSE influence online impulsive buying within e-commerce platforms. We will investigate customers' attitudinal loyalty as a mediator between the OCSE and online impulsive buying behavior, and the customers' self-control as a moderator between customers' attitudinal loyalty and online impulsive buying. To analyze these relationships we will conduct an online survey (n = 1489) with customers of two leading Chinese e-commerce platforms: Jindong and Taobao. The findings from structural equation modeling indicate a positive relationship between the tested dimensions of the OCSE and customers' online impulsive buying. We also find a mediating role of customers' attitudinal loyalty and negative moderation of customers' self-control. Theoretically, the findings contribute to the literature regarding online impulsive buying and the online customer experience. For managers, the findings stress the importance of ethical management with regard to the online shopping experiences.

1. Introduction

Online shopping is a common, globally found activity (Erjavec and Manfreda, 2021; Shao et al., 2022). In 2020, retail e-commerce sales worldwide amounted to 4.28 trillion United States (U.S.) dollars and this is projected to grow to 5.4 trillion U.S. dollars in 2022 (Coppola, 2021). Within this vast market, customers will often make spontaneous, unplanned, unreflective and unthoughtful purchases (Habib and Qayyum, 2018; Kimiagari and Malafe, 2021) and this is referred to as 'online impulsive buying' (Wu et al., 2020). For instance, customers in the United Kingdom (U.K.) spend approximately £1 billion per month on

impulsive buying (Bush, 2020) and eighty percent of adolescents in the U.S. are estimated to have made impulsive purchases online (Carter, 2018). Other studies reveal that up to 40% of all online purchases worldwide can be classified as impulsive (Chan et al., 2017; Verhagen and van Dolen, 2011).

In this regard, some studies suggest that a positive (i.e., pleasurable, addictive, satisfactory) online customer shopping experience (OCSE) may increase customers' immersion in the shopping activity (Anshu et al., 2022) and have an enhancing impact on the customers' online impulsive buying behaviors (Barari et al., 2020; Novak et al., 2000). OCSE refers to the cumulative psychological effect of customer

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interactions with a variety of virtual touchpoints (Bleier et al., 2019; Novak et al., 2000; Rose et al., 2012), including both functional and psychological dimensions (Klaus, 2013). E-commerce platforms generally lean towards developing a positive OCSE that is conducive to attracting and retaining a loyal customer base, consequently obtaining success and growth (Berry et al., 2002; Bleier et al., 2019; De Keyser et al., 2020). Thus, it is critical to understand the relationship between the OCSE and impulsive buying in order to develop insights into both the customer base and the e-commerce business as a whole (Kuppelwieser and Klaus, 2020).

This fundamental understanding is of particular importance to online e-commerce managers; they have to balance the pressure of increasing their sales with the desire and need to act in an appropriate and ethical manner and not exploit the impulsive shopping tendencies that are associated with negative consumer-side effects such as over-consumption, sustainability challenges and financial repercussions that may result from reckless spending (Bleier et al., 2019; Kuppelwieser and Klaus, 2020; Novak et al., 2000; Rose et al., 2012). It is also important to highlight that a high degree of impulsive online shopping increases environmental waste; rash purchasing decisions lead consumers to acquire material things that they truly do not need, and then, as a result, they abandon said items, causing major ramifications for sustainable commerce.

The current understanding of how the OCSE affects online impulsive buying, and consequently our understanding of this critical phenomenon is limited (Kranzbühler et al., 2018; Kuppelwieser and Klaus, 2020). The few studies that are available have been primarily focused on the functional aspect of the OCSE (Schlosser et al., 2006; Verhoef et al., 2009), with little attention paid to the psychological aspect. In order to develop a holistic understanding of the impact of the OCSE on online impulsive buying decisions, it is essential to investigate the effect of both the functional and psychological dimensions of the OCSE; this particular aspect of the research is very lacking at present (Pandey and Chawla, 2018).

Scholars argue that a positive OCSE during past interactions may influence the customers' attitudinal loyalty, and that this will in turn impact customers' shopping behavior (Chaudhuri and Holbrook, 2001; Cachero-Martínez and Vázquez-Casielles, 2021). This argument is based on the notion that customers' attitudes towards certain online brands are requisites for actual behaviors (Anshu et al., 2022). Based on their interactional experiences, customers develop a specific mental framework and an emotional attachment with e-commerce platforms that serve to regulate their purchasing behaviors through cognitive and affective channels (Gentile et al., 2007; Bleier et al., 2019). If customers demonstrate a positive disposition towards certain e-commerce platforms, they are more likely to engage in impulsive buying behaviors (Bandyopadhyay and Martell, 2007; Kranzbühler et al., 2018; Rose et al., 2012). Despite the extant literature indicating the mediating role of customers' attitudinal loyalty between the OCSE and online impulsive buying, there has been little research undertaken that has examined this role empirically (Srivastava and Kaul, 2016; Anshu et al., 2022).

Additionally, existing research demonstrates that customers with greater self-control, despite being attitudinally loyal to e-commerce platforms, can resist the urge to engage in impulsive buying (Kuhn, 2013) and thus mitigate the risks associated with this activity. Increased self-control enables customers to manage their thoughts, emotions and behaviors, enabling them to make more deliberate and considerate purchases (Yim, 2017; Iyer et al., 2020). Nonetheless, the existing literature on the OCSE and online impulsive buying is not sufficient enough to be able to clarify the extent to which customers' self-control can moderate the relationship between customer attitudinal loyalty and online impulsive buying (Vohs and Faber, 2003; Iyer et al., 2020). Considering the significance of the OCSE within e-commerce platforms, it is imperative to cultivate a finer understanding of the dynamics of these relationships, for both academics and practitioners alike (Iyer et al., 2020; Kuppelwieser and Klaus, 2020; Anshu et al., 2022).

Accordingly, our study aims to examine the influence of functional and psychological dimensions of the OCSE on online impulsive buying. In addition, the study intends to investigate the correlations between customers' attitudinal loyalty to the OCSE and online impulsive buying, and the moderation of customers' self-control between customers' attitudinal loyalty and online impulsive buying.

Our empirical study is based upon an online survey comprising 1489 respondents, all of whom had made purchases from the Jindong and Taobao online stores, two of the largest e-commerce platforms in China. The Chinese context was chosen because China currently leads the global e-commerce market, having not only a 42 percent market share (Manyika et al., 2017) but also a sizable proportion of Chinese consumers who regularly make purchases through e-commerce platforms (Alibaba, 2018; JD.com, 2019).

Our findings indicate that both the functional and psychological dimensions of the OCSE positively impact customers' online impulsive buying and that this relationship is partially mediated by customers' attitudinal loyalty toward online e-commerce platforms. We also find indications that customers' self-control negatively moderates the relationship between customers' attitudinal loyalty and online impulsive buying.

With this study, we make three contributions; firstly, we expand upon the boundaries of customer experience literature by highlighting how both dimensions of the OCSE are critical to gain a holistic understanding of the OCSE construct. Secondly, we offer empirical evidence demonstrating that the OCSE is a critical determinant of impulsive buying and indicating that both functional and psychological dimensions of the OCSE act as strong stimuli for the customers to make impulsive purchases on online e-commerce platforms. The third contribution is to establish the mediating and moderating mechanisms by which the OCSE components influence online impulsive buying decisions.

From a practical perspective, we argue that businesses should maximize revenue by fostering healthy online shopping environments, environments that do not rely on impulsive behavior in order to be profitable.

2. Conceptual underpinnings

2.1. Impulsive buying in online context

Impulsive buying denotes a rather fast and hedonically complex purchasing behavior by which is meant that the impulse leading to the purchase being made omits any careful, deliberate evaluation of alternative or future consequences (Sharma et al., 2010). As such, impulsive buying can be viewed as a type of irrational behavior by customers (Chung et al., 2017). Notably, a buying decision can be classified as impulsive if it meets three criteria: first, the decision is *spontaneous and unplanned*. Second, the buyers have *little regard for the consequences of their purchasing decisions*, and third, the purchasing decision is triggered by some *irresistible and difficult-to-control dispositional, situational or sociodemographic temptations*. These temptations may urge customers toward obtaining immediate gratification, or a stronger emotional attachment to the desired product, and they produce an intense, sudden, persistent and difficult-to-resist impulse to purchase something immediately. (Park et al., 2012; Rook, 1987; Spiteri Cornish, 2020; Verhagen and van Dolen, 2011).

A considerable amount of financial resources are used by e-commerce platforms in order to create, design and manage virtual shopping environments that will appeal to the OCSE (Verhoef et al., 2009). If e-commerce platforms are successful in generating a positive OCSE, customers may achieve a flow state where they become deeply engaged in online navigation and forget about other matters (Barari et al., 2020; Novak et al., 2000). While this state of flow may increase impulsive buying decisions (Hoffman and Novak, 1996), existing research is insufficient in determining whether and how the OCSE influences online

impulsive buying decisions. Some evidence does exist with regard to the functional dimension of the OCSE as an antecedent of online impulsive buying (Floh and Madlberger, 2013), but a holistic understanding of both the functional and psychological dimensions of the OCSE requires additional research (Klaus, 2013).

2.2. Online customers' shopping experience

Customer experience has become a central topic in marketing research due to the fact that businesses are increasingly realizing that their success largely depends on providing positive shopping experiences to their customers (Becker and Jaakkola, 2020). As a result, businesses utilize more of their financial resources to create positive and memorable customer experiences that can motivate customers to spend more money on products (Bleier et al., 2019; Rose et al., 2012). Positive customer experience plays a critical role in generating desirable outcomes for businesses, such as strong emotional attachment with brands, and increased customer satisfaction leading to customer loyalty (Anshu et al., 2022).

Extending the discussion regarding customer experience within the online context, the OCSE refers to the cumulative psychological effect of customer interactions with various virtual touchpoints (Bleier et al., 2019; Novak et al., 2000; Rose et al., 2012). The OCSE is a multifaceted, holistic and subjective process that occurs through the interactions between customers and the online environment (Trevinal and Stenger, 2014). For example, products available on e-commerce platforms possess certain qualities that customers subjectively perceive. The virtual interactions of customers impact the affective and cognitive states that will eventually affect their shopping behaviors (Cachero-Martínez and Vázquez-Casielles, 2021).

Researchers have identified different dimensions within the OCSE construct (Bleier et al., 2019; Cachero-Martínez and Vázquez-Casielles, 2021; Mclean et al., 2018) and these can be divided into functional and psychological dimensions (Klaus, 2013). Klaus (2013) argued that the *functional dimension* comprise usability, communication, social presence, product presence and interactivity of websites, whereas the *psychological dimension* consists of trust, value for money and context familiarity. Further, Pandey and Chawla (2018) adapted the components of functional and psychological dimensions from the context of book shopping to online shopping for clothes. They used four components, comprising interactivity, informativeness, visual engagement and ease of navigation and search within the functional dimension of the OCSE, and six components were used within the psychological dimension of the OCSE, these being e-distrust, e-negative beliefs, e-self in efficacy, e-logistic ease, e-convenience and e-enjoyment (Pandey and Chawla, 2018).

In this study, we adapt and combine the components from both studies (Klaus, 2013; Pandey and Chawla, 2018) in order to research product purchasing in the context of e-commerce platforms. In particular, we include all four components of the functional dimension highlighted by Pandey and Chawla (2018) and three prominent components of the psychological dimension: trust, convenience and enjoyment (Klaus, 2013; Pandey and Chawla, 2018). We chose three components from the psychological dimension because e-negative beliefs and e-self efficacy are not easily distinguishable from trust; they all relate to customer perception of the reliability of e-commerce platforms. In turn, e-logistic ease indicates the perceived convenience of the customer regarding their shopping journey, which is effectively covered by the convenience component.

2.3. Online customers' attitudinal loyalty and self control

Given the extant literature regarding online impulsive buying and the OCSE, it is reasonable to assume that both functional and psychological components of the OCSE may influence online impulsive buying (Pandey and Chawla, 2018; Kuppelwieser and Klaus, 2020). This influence, however, can occur via some mediation and moderation

mechanisms that are not currently well understood. Notably, customers' attitudinal loyalty might mediate the relationship between the OCSE and online impulsive buying because the OCSE is expected to influence customers' loyalty attitudes; this will affect their shopping behaviors, such as online impulsive buying (Srivastava and Kaul, 2016; Anshu et al., 2022). Since customers with greater self-control make more thoughtful decisions regarding their purchases, self-control can moderate the relationship between attitudinal loyalty and online impulsive buying (Iyer et al., 2020; Vohs and Faber, 2003).

Customers' attitudinal loyalty refers to the desire of the customer to continue their relationship with certain businesses - irrespective of the lower prices offered by competitors - and the customers' likely recommendations of these products to others (Chaudhuri and Holbrook, 2001). It includes a "degree of dispositional commitment in terms of some unique value associated with the brand" (Chaudhuri and Holbrook, 2001, p. 82). Attitudinal loyalty encompasses both cognitive and affective components of the relationship with e-commerce platforms. Cognitively, it reflects the mental framing of the customer when taking into account the relationship with certain e-commerce platforms (Gentile et al., 2007). It represents an emotional attachment that generates a higher allegiance and engages the customer with the e-commerce platforms; this results in higher attitudinal loyalty (Bleier et al., 2019).

Overall, customers' attitudinal loyalty represents the inclination of the customer to prefer one platform over other platforms and relates to feelings of attachment and willingness to recommend the platform to other customers (Jones and Taylor, 2007). Srivastava and Kaul (2016) found that the customer experience impacts purchasing decisions by way of attitudinal loyalty. Their findings imply that customer experience management is perhaps the most critical ingredient of gaining customer loyalty; if customers are more attitudinally loyal to specific platforms, they will spend more time browsing these platforms, increasing the chances of their engagement in impulsive buying decisions (Anshu et al., 2022).

Customer self-control refers to one's ability to regulate thoughts, emotions and behaviors in the face of undesirable impulses and temptations (Kuhn, 2013). Self-control enables individuals to maintain meticulous psychological behavior with the end result being that they deny themselves immediate benefits in exchange for achieving long-term benefits (Yim, 2017). Customers with high self-control exhibit thoughtful and predetermined behaviors with a high level of planning and foresight (Kuhn, 2013). Thus, self-control is an essential component enabling people to traverse from the present to the desired state. Applying the same logic to purchasing behavior, it is logical that self-control comes into play when making various purchase decisions. When self-control abilities are depleted, customers are likely to opt for unwise and unplanned purchasing behavior (Iyer et al., 2020; Vohs and Faber, 2003). Customers with low self-control are trapped in momentary thoughts, making them more likely to engage in impulsive buying (Baumeister, 2002).

3. Hypothesis development

3.1. Relationship between the OCSE and online impulsive buying

In the functional dimension of the OCSE, the interactivity component regards shopping as a social experience. Customers can interact with other customers and staff of e-commerce platforms through virtual means to obtain more information during the shopping process. They can seek advice from other users, read product reviews and interact with intelligent virtual agents, such as Alexa, to aid their buying decisions (Ganesh et al., 2010). Virtual interactions on e-commerce platforms are essential in accomplishing customers' shopping goals. They facilitate the exchange of relevant information between different actors in a timely manner in order to make buying decisions. Hence, the customer's interactional experience with the content, features, design and interface

of an e-commerce platform may influence online impulsive buying behaviors (Mollen and Wilson, 2010).

Informativeness denotes the extent to which a website provides customers with helpful information (Lim and Ting, 2012). Informativeness is generally objective, impersonal and result-oriented, and it encompasses the functional aspect of web design components (Verhoef et al., 2015). As customers tend to spend more time on e-commerce platforms that provide all required information in an easily accessible manner, the platforms put effort into designing their product pages so that customers can get accurate, detailed and relevant information about products, features, policies and prices (Bressolles et al., 2014), all of which may encourage the customer to make purchasing decisions, often impulsively (Mahadevan, 2000; Schlosser et al., 2006; Verhoef et al., 2009).

Visual engagement refers to the appealing design of the virtual environment of the e-commerce platform that provides a positive online experience (Liu et al., 2013). Characteristics, such as color scheme, website quality and style are essential to attract customers' attention and keep them interested in the website (Bressolles et al., 2014). E-commerce platforms create virtual communities, chats, or message boards to enhance the OCSE in the virtual world (Martin et al., 2015). It has been argued that the aesthetic outlook and the virtual product display of e-commerce platforms act to facilitate online engagement (Sundström et al., 2019) and that digital design components such as using an appealing font type, different shapes, colors and photos all make the online interactional experience more satisfying (Bressolles et al., 2014). Combined with this, a higher level of visual engagement may positively impact the affective state of the customer and is more likely to result in online impulsive buying decisions (Martin et al., 2015).

Given that online customers accomplish their shopping goals in the virtual world, e-commerce platforms generally design web pages that make them easy to navigate and search. To this effect, ease of product search, availability of relevant information, valuable personalized suggestions and navigability across different products will influence customers' search actions and purchasing behavior (Ha and Stoel, 2012). Integration of various interactional tools and features within the web pages of the e-commerce platform will facilitate easy product search and faster completion of purchasing orders, thereby improving the OCSE and increasing the chances of impulsive buying (Floh and Madlberger, 2013).

Based on these arguments, we hypothesize that:

H1. *There is a positive relationship between (a) interactivity, (b) informativeness, (c) visual engagement, and (d) navigation and search ease components of the functional dimension of the OCSE and online impulsive buying.*

In the psychological dimension, the trust component denotes customer confidence in the e-commerce platforms in that the business will deliver the promised value (Cheung et al., 2014; Urban et al., 2001). Greater trust mitigates the negative impacts of lack of personal contact, physical distance and anonymity of shopping online (Kimiagari and Malafe, 2021). Trust reduces the extent of uncertainty which is generally associated with buying online (Pandey and Chawla, 2018). On the contrary, if customers feel threatened that their confidential personal and financial information may be compromised while shopping on e-commerce platforms, they are more likely to be disloyal and dissatisfied (Ha and Stoel, 2012). Trust in the online environment is critical throughout the purchasing process and it adds hedonic value if the customer experience is positive, as well as impacting impulsive buying behaviors (Klaus and Maklan, 2013). Customers that have trust in the company will spend more time browsing the different products that are offered by said company, thus increasing the chances of a higher degree of spending impulsively (Ha and Stoel, 2012; Klaus, 2013).

The convenience component of the OCSE is attributed to the freedom of making purchases without strict geographical or time limitations. It

allows customers to shop at their chosen time, day and location. Convenience is more pronounced for customers whose time is scarce because of their greater commitment to other activities (Faqih, 2016). Conversely, customers who feel frustrated due to experiences on websites that have too many graphical elements or complicated designs may feel dispirited about spending time on e-commerce platforms (Pandey and Chawla, 2018). Hence, greater convenience given by e-commerce platforms will increase the chances of impulsive buying by the customers (Chan et al., 2017).

The enjoyment component of the psychological dimension of the OCSE refers to the affective aspect of the web design. Product webpages are designed in such a way that they provide immediate pleasure to the customer when the customer is searching, comparing and buying products from an e-commerce platform (Pandey and Chawla, 2018). The enjoyment that the customer may feel during their online purchasing journey may arouse their emotions and influence their online shopping behavior (Kranzbühler et al., 2018). Moreover, shopping from e-commerce platforms eliminates physical and emotional hassles which are caused by shopping through other channels while still providing the excitement and pleasure of store-like environments (Novak et al., 2000). Additionally, e-commerce platforms also use chat rooms, search engine optimization and advanced technologies to enhance customers' enjoyment during their time shopping (Pandey and Chawla, 2018). While enjoying virtual interactions for an extended period, customers may experience a flow state, making online impulsive buying decisions more likely (Hoffman and Novak, 1996).

Using the backdrop of these arguments, we propose the following hypothesis:

H2. *There is a positive relationship between psychological components of the OCSE—(a) trust, (b) convenience, and (c) enjoyment—and online impulsive buying.*

3.2. Mediation of customers' attitudinal loyalty

Scholars argue that the OCSE may indirectly impact customers' online impulsive buying through the mediation of customers' attitudinal loyalty (Srivastava and Kaul, 2016; Anshu et al., 2022). They contend that this mediation channel exists because the OCSE significantly affects customers' cognition and affection (Gentile et al., 2007; Bleier et al., 2019), which are the two building blocks of customers' attitudinal and influences online impulsive buying loyalty (Srivastava and Kaul, 2016). By drawing on these assertions, we posit that customers' attitudinal loyalty mediates the relationship between functional and psychological dimensions of the OCSE and online impulsive buying.

Firstly, prior research suggests that positive interactional experiences of the customer will influence the cognitive aspect of attitudinal loyalty by way of shaping mental framings about relationships with e-commerce platforms. Each time a customer interacts with virtual touchpoints on e-commerce platforms, their existing mental frames about that platform are changed and refined (Gentile et al., 2007). Thus, customers will have positive mental images of platforms if e-commerce platforms consider customer sensitivities and preferences whilst designing the web pages (Srinivasan et al., 2002). Customer interactions can also impact the affective aspect of attitudinal loyalty by enhancing the customer's emotional attachment to the platforms (Bleier et al., 2019).

Secondly, informativeness transmits the value of a customer's experience in an objective and outcome-oriented manner (Schlosser et al., 2006; Verhoef et al., 2009) and contributes to the customer's pending buying decisions by influencing their attitudes and cognitive information processing (Gentile et al., 2007). If customers believe that e-commerce platforms provide sufficient information in an easily accessible manner in order that purchasing decisions can be made, they will form a positive attitude (Liu and Shrum, 2009). This positive attitude will guide the relationship between customers and platforms in the

long term (Rose et al., 2012).

Third, visual engagement, reflected through the overall design, content and graphical outlook of a website may influence the affective aspect of the customers' attitudinal loyalty (Kim et al., 2004). If the visual outlook resonates with the expectation and likes of customers, then positive emotions and associations will be promoted among them. Experiencing positive emotions is likely to generate good customer satisfaction and loyalty (Bressolles et al., 2014; Martin et al., 2015; Tandon et al., 2017).

Fourth, ease of navigation and search for the required information on e-commerce platforms enhances the customers' comfort level so that they may collect the required information and make purchasing decisions (Chan et al., 2017). Ease of website navigation significantly reduces customers' mental and physical efforts, customers who may otherwise view online shopping as time consuming and costly. Customers are likely to have negative attitudes towards e-commerce platforms that offer information in a complicated manner (Klaus and Maklan, 2013) and they may feel emotionally exhausted if they have to spend more time searching for the required information. It is probable that this could negatively influence their attitudes towards e-commerce platforms for future relationships (Pandey and Chawla, 2018). This implies that ease of navigability and search positively impacts customers' attitudinal loyalty (DeWulf et al., 2006; Ha and Stoel, 2012).

Based on the above reasoning, we propose the following hypothesis:

H3. *There is a positive relationship between the functional components of the OCSE—(a) interactivity, (b) informativeness, (c) visual engagement, and (d) navigation and search ease—and the customers' attitudinal loyalty towards an e-commerce platform.*

Trust, convenience and the enjoyment components of the psychological dimension of the OCSE can also impact the attitudinal loyalty of customers towards e-commerce platforms. If customers have strong trust in the credibility and reliability of an e-commerce platform to deliver the promised value, they are likely to exhibit a positive attitude towards the platform (Klaus and Maklan, 2013). As a result, customers perceive themselves as less uncertain about their relationships with e-commerce platforms (Klaus, 2013) and become more satisfied with the platform's practices that ensure the customer's privacy and confidentiality is maintained to high order (Pandey and Chawla, 2018). Thus, with more satisfaction and higher emotional attachment emanating from the trust, customers are expected to exhibit higher attitudinal loyalty towards an e-commerce platform (Ha and Stoel, 2012).

The convenience of completing the buying process on e-commerce platforms also impacts upon the attitude of the customer. Convenience allows customers to search for products easily, compare features and prices across multiple e-commerce platforms and to complete the buying transaction within a short time. Consequently, customers view online shopping as being hassle-free, less time-consuming, and cheaper (Chan et al., 2017). Customers are expected to have greater attitudinal loyalty as they may perceive e-commerce platforms to be more convenient and they believe that they can make the best use of their scarce time and resources to buy products at the time and location of their choosing (Faqih, 2016). Ultimately, if searching on web pages of e-commerce platforms gives immediate pleasure and enjoyment to customers, they are likely to have a positive attitude through the affective channel. Arousal of positive emotions and elimination of emotional and physical barriers during the shopping process leads to favorable attitudes towards e-commerce platforms (De Keyser et al., 2020; Kranzbühler et al., 2018).

Accordingly, we propose the following hypothesis:

H4. *There is a positive relationship between psychological components of the OCSE—(a) trust, (b) convenience, and (c) enjoyment—and customers' attitudinal loyalty towards an e-commerce platform.*

Prior research undertaken regarding customers' behaviors, with the roots of the research based in psychology, widely acknowledges that

attitudes and behaviors are interconnected and interdependent (Chen et al., 2021). This stream of research stresses that customers' attitudes towards particular object, such as e-commerce platforms, are significant predictors of their behaviors (Ajzen, 1991). However, scholars suggest that the relationship between attitudes and behaviors is not a straightforward and it may change in different conditions (Kimiagari and Malafe, 2021; Kim and Kim, 2022). Hence, an individual customer may demonstrate a negative behavior, despite having a positive attitude, and vice versa; they may exhibit positive behavior despite having negative attitude (Chen et al., 2021).

Nonetheless, customers with a positive attitude towards a particular entity have a reflection of higher attitudinal loyalty and greater positive emotions and they will wish to continue relationships (Jones and Taylor, 2007; Srivastava and Kaul, 2016). Such customers generally exhibit a greater level of involvement with the e-commerce platforms and do not engage in variety-seeking behavior to search for products from multiple platforms (Russell-Bennett et al., 2007). Attitudinally loyal customers spend more time on a given e-commerce platform than non-loyal customers (Molinillo et al., 2020) and while having extended and intense virtual interactions, loyal customers get into a flow state by losing their sense of time and surroundings, thus increasing their potential to be involved in impulsive buying behavior (Hoffman and Novak, 1996).

Hence, we propose the following hypothesis:

H5. *Customers' attitudinal loyalty towards the e-commerce platform is positively associated with online impulsive buying.*

The arguments mentioned above from the extant literature suggest two important relationships: (i) the OCSE is an important antecedent of customers' attitudinal loyalty (Kranzbühler et al., 2018), and (ii) customers' attitudinal loyalty leads to a higher likelihood of online impulsive buying. The OCSE is associated with both cognitive and affective aspects of attitudinal loyalty; this increases the chances of online impulsive buying by producing positive emotions or reducing the customer's information processing needs (Gentile et al., 2007). Customers use their affective and cognitive perspectives to evaluate the verbal and virtual stimuli during their shopping journey, impacting their attitudes, satisfaction and value (Becker and Jaakkola, 2020). The customer experience results are stored in the customer's long-term memory as formed attitudes that will help them interpret the incoming sensory data from stimuli (Rose et al., 2012). In other words, these assertions indicate that functional and psychological components of the OCSE may indirectly influence online impulsive buying through the mediation of the customer's attitudinal loyalty (Srivastava and Kaul, 2016).

Drawing on these core assertions, it can be argued that the impact of different components of the functional and psychological dimensions of the OCSE on online impulsive buying is mediated by customers' attitudinal loyalty (Russell-Bennett et al., 2007). To give an example; a greater level of interactivity of e-commerce platforms enriches the existing beliefs of the customer and influences the affective evaluation of all interactional experiences (Mollen and Wilson, 2010). Similarly, informativeness impacts upon the customer's biases by enhancing their confidence and ensuring that they believe all required information will be readily available to enable them to make decisions (Verhoef et al., 2015).

Prior research has found that visual engagement impacts the affective aspect of the OCSE while the ease of navigation and search influences the cognitive aspect of customers' predispositions (Kuppelwieser and Klaus, 2020). Components of the functional dimension of the OCSE impact the customer's attitudinal loyalty towards e-commerce platforms (Klaus, 2013) and prior research also provides evidence that attitudinal loyalty leads to a higher likelihood of impulsive buying (Hoffman and Novak, 1996; Molinillo et al., 2020). In summary, these arguments suggest that attitudinal loyalty mediates the positive relationship between the OCSE and online impulsive buying (Russell-Bennett et al., 2007; Srivastava and Kaul, 2016).

Based on the above reasoning, we propose the following hypothesis:

H6. *The relationships between the functional components of the OCSE—(a) interactivity, (b) informativeness, (c) visual engagements, and (d) navigation and search ease—and online impulsive buying is mediated by the attitudinal loyalty towards an e-commerce platform.*

Two arguments from the prior literature stress that attitudinal loyalty may mediate the relationship between components of the psychological dimension and online impulsive buying. Firstly, it is known that gaining the trust of the customer who is using the e-commerce platform, and enhancing their enjoyment whilst using it, will also enhance their attitudinal loyalty towards said platforms (e.g., [Ha and Stoel, 2012](#); [Chan et al., 2017](#); [De Keyser et al., 2020](#)). Secondly, scholars contend that attitudinal loyalty generates positive emotions among customers, increases their interactional time with e-commerce platforms and places the customers into a flow state while shopping online ([Hoffman and Novak, 1996](#); [Koufaris, M., 2002](#); [Skadberg and Kimmel, 2004](#)). Customers with positive emotions towards e-commerce platforms are more susceptible to individual biases and generally do not make decisions in a more considerate manner. This shows that the customers' favorable perception of e-commerce platforms positively influences their attitudes which then leads them to become more involved in online impulsive buying ([Russell-Bennett et al., 2007](#); [Srivastava and Kaul, 2016](#)).

H7. *The relationships between the psychological components of the OCSE—(a) trust, (b) convenience, (c) enjoyment—and online impulsive buying is mediated by the attitudinal loyalty towards an e-commerce platform.*

3.3. The moderating role of self-control

Despite acknowledging that customers' attitudinal loyalty increases their chances of online impulsive buying, some scholars argue that customers' self-control can negatively moderate this relationship ([Kuhn, 2013](#)). These scholars assert that customers with low self-regulatory resources feel a greater impulsive buying urge and will spend more money to buy from unanticipated impulsive buying situations ([Baumeister, 2002](#)). Conversely, customers who have a higher degree of self-control have a stronger tendency to resist impulsive buying decisions ([Kuhn, 2013](#)). The more that self-control is practiced among the customers, the more the ability to have self control is reinforced, strengthening their capacity to resist impulsive buying temptations ([Vohs and Faber, 2007](#)). Accordingly, customers with greater self-control tend to purchase items based on their evaluations of

long-term benefits and the value of a product, rather than buying under emotional influence ([Yim, 2017](#)).

Thus, we propose the following hypothesis:

H8. *The relationship between attitudinal loyalty towards an e-commerce platform and online impulsive buying is negatively moderated by self-control.*

Our overall conceptual model and the role of each hypothesis within it are illustrated in [Fig. 1](#). It shows that functional and psychological dimensions of the OCSE influence online impulsive buying through the mediation of customers' attitudinal loyalty towards e-commerce platforms. Customers' self-control moderates the relationship between customers' attitudinal loyalty and online impulsive buying.

4. Methodology

Since our study aims to empirically examine the proposed relationships in our conceptual framework, quantitative analysis is appropriate. In the following subsections, we report the details of our empirical study, including measurement of variables, data collection, and data analysis techniques.

4.1. Data collection

To collect empirical data, we developed a questionnaire by adopting the measurement scale items from previous literature. The questionnaire contained close-ended questions with a seven-point Likert scale, from 1 being "strongly disagree" to 7 being "strongly agree". We adopted five items for interactivity, four items for informativeness, three items for visual engagement, and four items for search and navigation from [Skadberg and Kimmel \(2004\)](#). We adopted the scale for trust from [Gefen et al. \(2003\)](#), convenience from [Torkzadeh and Dhillon \(2002\)](#) and enjoyment from [Koufaris \(2002\)](#). The scale for platform loyalty was adopted from [Zeithaml et al. \(1996\)](#) and the scale for online impulsive buying from [Rook and Fisher \(1995\)](#). Finally, the scale for self-control was taken from [Haws et al. \(2012\)](#).

Since the participants for our study were from China, four marketing professors proficient in both English and Chinese helped to translate the questionnaire into Chinese, while ensuring face validity and contextual equivalence for respondents in China in parallel. The questionnaire was translated back into English by the same professors in order to cross-check the validity of the translation. A pilot study took place among

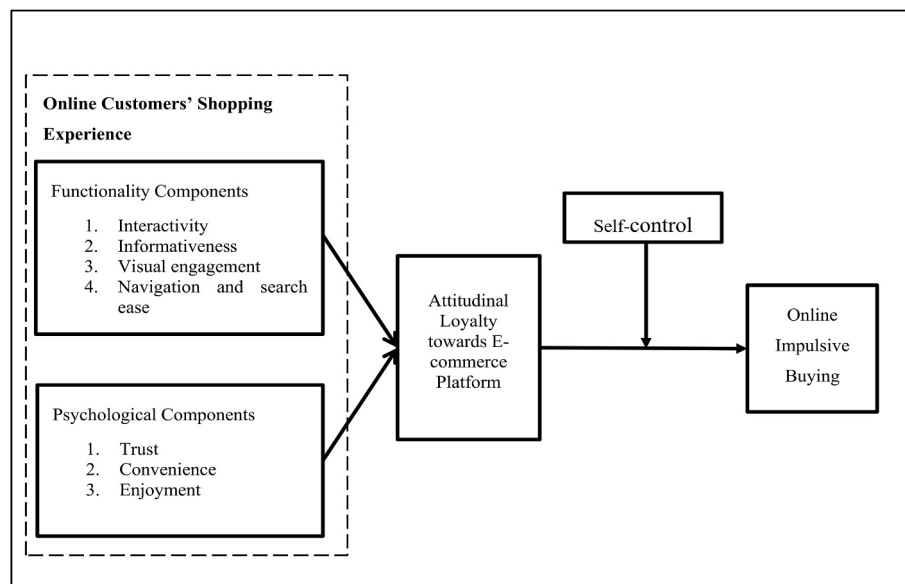


Fig. 1. Conceptual model of this study.

thirty-four Ph.D. and Master level students both for the purpose of pretesting and to ensure the validity of the translation. The whole process resulted in ensuring the face validity of the questionnaire.

The empirical data in the form of survey responses were obtained from the online shoppers of two leading e-commerce retail platforms in China: Jindong and Taobao. The selection of the Chinese context for data collection is appropriate because China has a leading position in the global digital economy, with 42% of the worldwide e-commerce transactions carried out in China (Manyika et al., 2017). Specifically, Taobao has 693 million active monthly users (Alibaba, 2018), and Jindong has 362 million (JD.com, 2019).

The questionnaire was created and distributed through an online survey website—<http://www.sojump.com>—which contains more than 2.6 million sample sources from all over China with diverse demographic backgrounds (Zhou et al., 2013). The study used paid services from Sojump and valid respondents were awarded with 100 points which were redeemable against gifts. To ensure that the respondent used Taobao and/or Jingdong to shop online, the questionnaire started with a screening question whereby respondents were asked “Have you used Jingdong or Taobao for online shopping recently?” If the answer was “No” the survey was closed. A similar approach has been adopted by Akram et al. (2018) in their online survey. The introductory phrases also explained the scenario with an example of buying online from Jingdong or Taobao. Finally, a total of 1489 valid responses were received. Table 1 shows further information about the respondents’ demographics.

4.2. Measurement model

Following the approach of Anderson (1988), we carried out a confirmatory factor analysis (CFA) examining model fitness, convergent validity and discriminant validity. CFA helps find the goodness of fit indices for the model. These values are within the adequate range ($\chi^2 = 4417.303$, $df = 2436$, $\chi^2/df = 1.813$ (adequate range <3), SRMR = 0.039 (adequate range <0.08), GFI = 0.938 (Acceptable = 0.90), AGFI = 0.931 (Acceptable = 0.90), NFI = 0.965 (Acceptable = 0.90), RFI = 0.962 (Acceptable = 0.90), CFI = 0.984 (Acceptable = 0.90); TLI = 0.983 (Acceptable = 0.90); RMSEA = 0.023 (adequate range <0.08) (Hu and Bentler, 1999).

Table 2 demonstrates details of the model fit indices with their acceptance level and observed values, indicating that observed values met the standards satisfactorily. Convergent validity was established by evaluating factor loadings, composite reliability, average variance

Table 1

Demographics of the respondent's (n = 1489).

Demographic information	Frequency	Percentage
Gender		
Male	725	48.7
Female	764	51.3
Age (years)		
18-25	810	54.4
26-30	385	25.9
31-40	127	8.5
41-50	110	7.4
51-60	57	3.8
Education		
Bachelors	598	40.2
Masters	618	41.5
Ph.D. and Others	273	18.3
Income (RMB/Month)		
Less than 3000	192	12.9
3 K–5K	679	45.6
5 K–10 K	490	32.9
More than 10 K	128	8.6
Time spent online on a daily basis		
Less than 2 h	426	28.6
2–4 h	543	36.5
4–6 h	335	22.5
More than 6 h	185	12.4

Table 2

Confirmatory factor analysis.

Constructs	FL	Items
Interactivity (CR = 0.919; VAE = 0.695; α = 0.87)		
INT1	0.829	My needs are responded well while shopping online.
INT2	0.838	I get purchase recommendations that match my needs while shopping online.
INT3	0.831	While shopping online, I get online advertisements and promotions customized as per my needs.
INT4	0.823	Online shopping makes it possible to view the product recommendations of other customers.
INT5	0.848	Online shopping portals feel like they are talking to me personally as a customer.
Informativeness (CR = 0.902; VAE = 0.698; α = 0.84)		
INF1	0.834	I get rich information on the features and quality of the products while shopping online.
INF2	0.83	I get accurate information on the features of the products.
INF3	0.835	I get detailed information about products while shopping online.
INF4	0.842	I get sufficient information to complete my transaction.
Visual engagement (CR = 0.873; VAE = 0.696; α = 0.80)		
VE1	0.834	I can see the product from different angles while shopping online.
VE2	0.824	I find the screen design (i.e., colors, boxes, menus, navigation tools, etc.) is harmonious.
VE3	0.844	The online shopping portal is professionally designed and well presented.
Navigation and search ease (CR = 0.904; VAE = 0.701; α = 0.84)		
NVSE1	0.839	I get good navigation facilities to search for the information content.
NVSE2	0.839	I find the user menus clearly categorized and well laid out on the screen.
NVSE3	0.838	I find the organization and sequencing of the website understandable and easy to use.
NVSE4	0.834	The search tools enable me to locate products easily.
Trust (CR = 0.899; VAE = 0.690; α = 0.83)		
TRUST1	0.833	Online shopping can be trusted; there are no uncertainties online.
TRUST2	0.833	In general, I can rely on online shopping to keep the promises they make.
TRUST3	0.827	Online shopping is reliable.
TRUST4	0.83	Online shopping is a trustworthy experience.
Convenience (CR = 0.903; VAE = 0.699; α = 0.84)		
CONV1	0.831	I find shopping online is convenient.
CONV2	0.831	I can do online shopping at any time.
CONV3	0.844	I can do online shopping being at any place.
CONV4	0.839	While shopping online, I can finish my shopping very quickly.
Enjoyment (CR = 0.873; VAE = 0.696; α = 0.80)		
ENJ1	0.836	I enjoy buying things on the internet.
ENJ2	0.824	Online buying is a fun way to shop.
ENJ3	0.842	I enjoy browsing on the internet.
Attitudinal loyalty (CR = 0.943; VAE = 0.701; α = 0.90)		
AL1	0.836	I seldom consider switching to another platform.
AL2	0.825	As long as the present service continues, I doubt that I would switch the platform.
AL3	0.834	I try to use this platform whenever I need to make a purchase.
AL4	0.849	When I need to make a purchase, this platform is always my first choice.
AL5	0.836	I like using this platform.
AL6	0.838	To me, this platform is the best retail platform to do business with.
AL7	0.843	I believe that this is my favorite retail platform.
Impulsive buying (CR = 0.942; VAE = 0.698; α = 0.90)		
IB1	0.836	It is a struggle to leave nice things I see online.
IB2	0.836	I sometimes cannot suppress the feeling of wanting to buy something online.
IB3	0.835	I sometimes feel guilty after having bought something online.
IB4	0.832	I find it difficult to pass up a bargain online.
IB5	0.835	If I see something new on the internet, I want to buy it.
IB6	0.834	I am a bit reckless about buying things on the internet.
IB7	0.839	I sometimes buy things online because I like buying things, rather than because I need them.
Self-control (CR = 0.933; VAE = 0.700; α = 0.88)		
SC1	0.839	I can work effectively toward long-term financial goals.
SC2	0.845	I carefully consider my needs before making purchases.
SC3	0.829	I often delay actions until I have carefully considered the consequences of my purchase decision.

(continued on next page)

Table 2 (continued)

Constructs	FL	Items
SC4	0.841	I can resist the temptation to achieve my budget goals.
SC5	0.829	If anyone asks me where you spent money, I know how to respond.
SC6	0.837	Having objectives related to spending is important to me.

Note: FL: factor loading extracted using PCA with varimax rotation. C.R.: composite reliability. This is computed by $(\sum k)^2 / (\sum k)^2 + (\sum d)$. AVE: average variance extracted. This is computed by adding the squared factor loadings divided by the number of factors of the underlying construct. * $p < 0.01$.

extracted (AVE) and Cronbach's alpha. The factor loadings, composite reliability, AVE and Cronbach's alpha coefficients were above the cut-off points of 0.7, 0.7, 0.5, and 0.7, respectively (see Table 2) (Churchill, 1979; Fornell and Larcker, 1981; Hair et al., 2010; Nunnally, 1981).

If the correlation between the independent variables is high, then the issue of multicollinearity appears (Hair et al., 2010). To test for multicollinearity, variance inflation factor (VIF) and tolerance were examined; VIF should not be higher than 3, and tolerance should not be less than 2 (Hair et al., 2010). The results detailed in Table 3 indicate that the current study has met the required standards.

The discriminant validity test helps assess the level of distinctiveness of constructs and their measures (Peter, 1981). The assessment of discriminant validity is accomplished by comparing the square root of AVE of a construct with the correlation between that construct where the square root of AVE must be higher than correlation values (Fornell and Larcker, 1981; Teo et al., 2009).

Table 3 shows that the obtained values of the correlation for the constructs, and the diagonal values are the square roots of AVE fulfill the criterion set for discriminant validity.

4.3. Common method variance

We employed Harman's single factor test (Podsakoff et al., 2003) to test for common method variance due to the fact that the data was collected from a single source. The unconstrained single factor analysis results accounted for 30.62% of the variance for the first factor out of 64.08% of the total variance explained. The results indicate that the common method variance is not likely to affect our data. For common method bias robustness, the study followed the common latent factor method (CLF) proposed by Podsakoff et al. (2003). The results complied with the standards, as the variances between the comparative models (with and without common factors) were insignificant. The CLF also confirmed the result of the former test.

4.4. Structural model assessment

Firstly, we tested the structural model with the structural equation modeling (SEM) technique. To gauge the model fitness, we followed the classification proposed by Hooper et al. (2007). To confirm the absolute

fit measures, four of the following indices were empirically extracted: (a) Chi-square/degree of freedom (χ^2/df) where the value of χ^2/df should be lower than 3.0, (b) Root Mean Square Error of Approximation (RMSEA) where the standard cut-off is a value lower than 0.08 (Hu and Bentler, 1999), (c) GFI, wherein the acceptable value must be a value of 0.90 or above (Hu and Bentler, 1999), and (d) AGFI, with the standard acceptable value being above 0.80 (Maccallum and Hong, 1997). Our results ($\chi^2/df = 2.28$, RMSEA = 0.055, GFI = 0.966, and AGFI = 0.844) met the standards, thus approving the model fitness as per absolute fit measures.

Secondly, indices for incremental fit measures were shown to cater to the normed fit index (NFI), the incremental fit index (IFI), the comparative fit index (CFI) and the relative fit index (RFI). The standard acceptable values for these indices must be greater than 0.90 (Hu and Bentler, 1999). The empirical analysis results showed NFI = 0.964, IFI = 0.919, CFI = 0.918, and RFI = 0.951, and this complies with the basic standard approving the model fitness.

Lastly, we tested the parsimonious adjusted measures that include parsimony comparative fit index (PCFI), the parsimonious normed fit index (PNFI) and the parsimonious goodness fit index (PGFI). The acceptable standard values for these indices must be above 0.50 (Hu and Bentler, 1999); again, our results (PCFI = 0.833, PNFI = 0.799, and PGFI = 0.743) conformed to the standards. In conclusion, the structural model fit results meet the goodness of model fit standards.

5. Results

5.1. Direct effects

Results related to all hypotheses for direct effects are presented in Table 4. All of the hypotheses are supported. Firstly, the results indicate that all four functional components of the OCSE (i.e., interactivity, informativeness, visual engagement, navigation, and search ease) significantly affect online impulsive buying from e-commerce platforms (H1). Secondly, the findings reveal that customers who trust e-commerce platforms and find them more convenient and enjoyable to undertake their purchasing process are likely to make more impulsive buying decisions (H2). Hence, H1 and H2, which respectively state that the functional and psychological dimensions of the OCSE significantly impact online impulsive buying, are fully supported. We also found that components of the functional and psychological dimensions of the OCSE have a significant positive impact on customers' attitudinal loyalty towards an e-commerce platform, demonstrating support for H3 (a, b, c, and d) and H4 (a, b, and c). Finally, the findings show that customers with greater attitudinal loyalty towards the e-commerce platform are more likely to engage in online impulsive buying, and this finding supports H5.

Table 3

VIFs, correlations, and discriminant validity.

Constructs	1	2	3	4	5	6	7	8	9	10
1 Interactivity	0.834									
2 Informativeness	.663	0.835								
3 Visual engagement	.230	.303	0.834							
4 Navigation and search ease	.502	.693	.325	0.837						
5 Trust	.625	.649	.258	.664	0.831					
6 Convenience	.515	.664	.213	.696	.649	0.836				
7 Enjoyment	.318	.425	.345	.421	.399	.355	0.834			
8 Attitudinal loyalty	.534	.516	.311	.520	.659	.504	.415	0.837		
9 Impulsive buying	.501	.690	.255	.510	.656	.566	.406	.503	0.835	
10 Self-control	.533	.522	.312	.521	.508	.532	.432	.546	.0550	0.837
Tolerance	.379	.398	.830	.351	.444	.373	.733	.593	.631	.295
VIF	2.640	2.515	1.204	2.852	2.251	2.684	1.364	1.794	1.438	2.104

Table 4

Results of the direct effects.

Paths	Path coefficients	SE	t-statistics	R-square	Bias-corrected CI. 95%	Relationships
H1a _{Intrct} →IB	0.4308***	0.051	8.424	0.240	[0.3300, 0.5315]	Supported
H1b _{Inform} →IB	0.4105***	0.048	8.590	0.247	[0.3163, 0.5047]	Supported
H1c _{VisEngmn} →IB	0.3757***	0.048	7.857	0.215	[0.2815, 0.4699]	Supported
H1d _{NvgSEas} →IB	0.4443***	0.049	9.144	0.271	[0.3485, 0.5400]	Supported
H2a _{Trust} →IB	0.4833***	0.051	9.541	0.288	[0.3834, 0.5831]	Supported
H2b _{Convenc} →IB	0.4752***	0.054	8.775	0.255	[0.3685, 0.5819]	Supported
H2c _{Enjoy} →IB	0.487***	0.048	10.097	0.312	[0.3920, 0.5820]	Supported
H3a _{Intrct} →AL	0.3994***	0.025	15.993	0.569	[0.3504, 0.4484]	Supported
H3b _{Inform} →AL	0.4411***	0.028	15.666	0.566	[0.3859, 0.4964]	Supported
H3c _{VisEngmn} →AL	0.055***	0.025	2.201	0.497	[0.0060, 0.1039]	Supported
H3d _{NvgSEas} →AL	0.3055***	0.018	17.440	0.581	[0.2712, 0.3399]	Supported
H4a _{Trust} →AL	0.3553***	0.024	14.846	0.560	[0.3083, 0.4022]	Supported
H4b _{Convenc} →AL	0.4746***	0.019	24.522	0.640	[0.4367, 0.5126]	Supported
H4c _{Enjoy} →AL	0.1385***	0.020	6.908	0.511	[0.0992, 0.1779]	Supported
H5 _{AL} →IB	0.2332***	0.083	2.823	0.429	[0.0704, 0.3960]	Supported

Note: Intrct = Interactivity, Inform = informativeness, VisEngmn = Visual Engagement, NvgSEas = Navigation and search ease, trust = Trust, convenc = Convenience, enjoy = enjoyment, AL = Customer attitudinal loyalty towards the e-commerce platform, IB = Online Impulsive Buying ***p < 0.001; **p < 0.01; *p < 0.05.

5.2. Mediation effects

To test the mediation effects, we followed the bootstrapping procedure and applied PROCESS Macros 3.2 (Hayes, 2009; 2017). More specifically, we used Model 4 from PROCESS Macros 3.2 to check the mediation effect of customers' attitudinal loyalty towards the platform between the functional and psychological dimensions of the OCSE and online impulsive buying. Table 5 presents the mediation results that support H6 (a, b, c, and d) and H7 (a, b, and c). In other words, the impact of functional and psychological dimensions on online impulsive buying is mediated by customers' attitudinal loyalty towards an e-commerce platform.

We estimate the magnitude of mediation effects by measuring variance accounted for (VAF) technique (Hair et al., 2016). VAF values above 80% indicate full mediation, between 20% and 80% indicate partial mediation and less than 20% indicate no mediation (Hair et al., 2016). In our analysis, we found full mediation only for H6(c) and this indicates that customers' attitudinal loyalty towards platforms fully mediates the relationship between the visual engagement component of the functional dimension of the OCSE and online impulsive buying. In contrast, the empirical evidence offers complete support for partial mediation of customers' attitudinal loyalty towards the platform and all other components of functional and psychological dimensions of the OCSE (see Table 5).

Table 5

Mediation effects.

Structural Path	Effect	95% Confidence interval	VAF	Relationships
H6a _{Intrct} →AL→IB	0.2989	[0.2535, 0.3442]	43%	Partial Mediation
H6b _{Inform} →AL→IB	0.3538	[0.3129, 0.3974]	45%	Partial Mediation
H6c _{VisEngmn} →AL→IB	0.2765	[0.2197, 0.3306]	83%	Full Mediation
H6d _{NvgSEas} →AL→IB	0.2081	[0.1804, 0.2363]	41%	Partial Mediation
H7a _{Trust} →AL→IB	0.3308	[0.2953, 0.3681]	48%	Partial Mediation
H7b _{Convenc} →AL→IB	0.2023	[0.1722, 0.2324]	30%	Partial Mediation
H7c _{Enjoy} →AL→IB	0.2696	[0.2284, 0.3102]	66%	Partial Mediation

Note: Intrct = Interactivity, Inform = informativeness, VisEngmn = Visual Engagement, NvgSEas = Navigation and search ease, trust = Trust, convenc = Convenience, enjoy = enjoyment, AL = Attitudinal loyalty, IB = Impulsive Buying.

5.3. Moderation effects

To test for the moderation effects, we applied PROCESS Macros 3.2 for SPSS 25.0. More precisely, we used Model 1 of the PROCESS Macros for first-stage moderation to check the moderation effect of self-control between the customers' attitudinal loyalty towards the platform and online impulsive buying. The findings reveal that the relationship between customers' attitudinal loyalty towards e-commerce platforms and online impulsive buying is negatively moderated by self-control, $\beta_{PL \times SC \rightarrow IB} = -0.1972$, $t = -22.558$, [CI: -0.2144, -0.1801], $p < 0.001$. In other words, H8 is fully supported (see Table 6).

Fig. 2 shows a comprehensive summary of the empirical findings related to all proposed relationships in our conceptual framework.

6. Discussion

6.1. General discussion

The current study establishes that a holistic understanding of the OCSE as stimuli for customers' online impulsive buying can be gained by combining functional and psychological components. To this end, our study empirically examined four critical components of functional dimension, these being interactivity, informativeness, visual engagement and navigation and search (Klaus, 2013; Pandey and Chawla, 2018). Further, we investigated the trust, convenience, and enjoyment components of the psychological dimension (Pandey and Chawla, 2018) and we found that both the dimensions of the OCSE increase customers' online impulsive buying behavior in e-commerce platforms. Accordingly, customers with a positive OCSE have a higher likelihood of engaging in online impulsive buying.

Considering the importance of attitudinal loyalty and customers' self-control in impulsive buying (Chaudhuri and Holbrook, 2001; Cachero-Martínez and Vázquez-Casielles, 2021; Iyer et al., 2020; Vohs and Faber, 2003), we extended our empirical examination further through the inclusion of both aspects. Our findings showed that the effect of the OCSE components on customers' online impulsive purchasing

Table 6

Moderation effects (self-control).

Paths	Path coefficients	SE	t-statistics	Bias-corrected CI. 95%	Relationships
H8 _{PLxSC} →IB	-0.1972***	0.009	-22.558	[-0.2144, -0.1801]	Supported

Note: SC = Self-Control, AL = Attitudinal loyalty, IB = Impulsive buying ***p < 0.001; **p < 0.01; *p < 0.05.

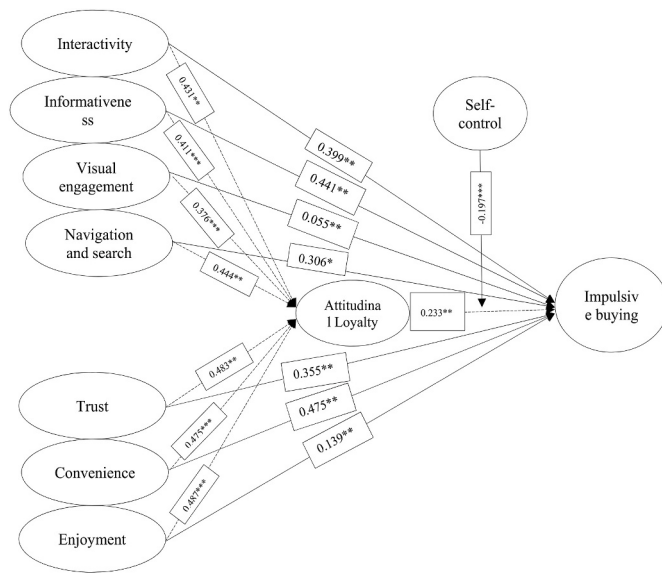


Fig. 2. Conceptual model showing empirical results.

behavior is mediated by customers' attitudinal loyalty toward the online e-commerce platform. Nonetheless, customers with greater self-control are less susceptible to the OCSE as stimuli due to their more deliberate purchasing decisions.

6.2. Theoretical contributions

This study contributes to the literature on customer experience and impulsive buying in an online environment. We offer empirical evidence that the OCSE is a significant predictor of online impulsive buying behavior when shopping via e-commerce platforms (Anshu et al., 2022), thus fulfilling a critical cavity in the existing knowledge base. The study also corroborates assertions that the OCSE is a multifaceted, holistic and subjective process that encapsulates the psychological impact of all customer interactions on e-commerce platforms (Bleier et al., 2019; Novak et al., 2000; Rose et al., 2012). Most of the prior research on the OCSE has primarily focused on various aspects of the functional dimension (Schlosser et al., 2006; Verhoef et al., 2009); hence the knowledge was fragmented. However, through this study, we have enhanced existing understanding by offering empirical support to the arguments of Klaus (2013) and Pandey and Chawla (2018) who postulate that a holistic understanding of the OCSE can only be gained by combining the psychological dimension with the functional one; a claim proposed in the previous literature but not empirically validated until now. Overall, the findings indicate that the four components of the functional dimension and the three components of the psychological dimension significantly affect online impulsive purchasing (Klaus, 2013; Pandey and Chawla, 2018).

Our findings also corroborate the contention that the customers' attitudinal loyalty can act as a mediator between the OCSE and online impulsive buying (Anshu et al., 2022; Srivastava and Kaul, 2016). We observed a mechanism by which the OCSE impacts online impulsive buying, implying that a positive OCSE changes both the cognitive and affective aspects of customers' attitudinal loyalty (Cachero-Martínez and Vázquez-Casielles, 2021; Chaudhuri and Holbrook, 2001). Hence, we deepen the existing understanding by showing loyal customers not only have favorable mental models of platforms, but they also have an emotional attachment to certain platforms (Bleier et al., 2019). Accordingly, our findings regarding the magnitude of the mediation effect further enhances the existing knowledge through identifying that customers' attitudinal loyalty partially mediates the impact of all functional and psychological dimensions. Further, our findings also help to

develop insights into how the customers' self-control can act as a negative moderator of the relationship between their attitudinal loyalty and online impulsive buying. This is an important connection that directly links to the theoretical trade-off that impulsive shopping behavior is somewhat detrimental for the consumer, but beneficial for the firm.

6.3. Practical implications

Impulsive shopping behavior can result in negative effects for the customer; to give example, buying things that are not truly needed, using borrowed money and becoming in debt and contributing to environmentally non-sustainable consumerism (De Kervenoael et al., 2009; O'Cass and Siahtiri, 2013; Pentecost and Andrews, 2010). To carry out ethically sound marketing, we encourage e-commerce platforms to design features that strongly support the customers' self-controlling tendencies. These include aspects of long-term financial planning, considering one's true needs prior to making a purchase, deliberating on the consequences of one's consumption decisions, resisting temptations, monitoring one's spending behavior and having specific objectives related to spending. As we mentioned in the introduction, there is a certain natural-born conflict between revenue optimization (i.e., "conversion optimization") and the maximization of the conditions required for healthy online shopping; one that does not rely on impulsive behavior to be profitable. In the long run, our premise is that the interest of shoppers and e-commerce platforms are aligned: both want to make "genuine" transactions, for example, selling and buying items that they have a real need for. Given this premise, the conflict between conversion optimization and impulsive buying is somewhat dissolved.

E-commerce platforms and merchants should act ethically and not actively encourage impulsive purchasing. For instance, Shopify, the renowned e-commerce platform that allows entrepreneurs to set up an online store in order to sell their products, has dedicated sections in their Retail blog with themes like, 'How to encourage impulse shopping' and 'Increase sales with impulse purchases' (Keenan 2021). This indicates that the industry still has some catching up to do in terms of ethical and sustainable marketing.

In addition to supporting self-control, businesses are encouraged to invest in creating a positive OCSE by simultaneously considering functional and psychological dimensions to gain positive outcomes, in particular developing a loyal customer base, as evidenced by our results, which show the positive relationship between the OCSE and customer attitudinal loyalty. Businesses can use the constructs analyzed in our hypotheses as a checklist to confirm that all of them are effectively reflected in a platform's customer experience management strategy that is targeted towards loyalty (but not towards impulsive buying). This can help e-commerce platforms to build positive shopping experiences for customers. Overall, simultaneously supporting self-control while building a strong OCSE is a balanced strategy for mitigating the harms of impulsive shopping for the consumer and the environment while still ensuring the platform's competitiveness against other platforms.

When looked at in more detail, the findings imply that e-commerce platforms achieve loyalty benefits by improving the customers' interactional experiences via designs that provide customers with relevant information about features and costs of products, thus facilitating the effective decision-making of customers. Visual elements that encompass attractive designs, fonts, colors and other visual components better aid the customers enjoyment of their experience of shopping from e-commerce platforms, thereby contributing to value creation for platforms vis-à-vis competition. If e-commerce platforms design their digital offerings with consideration of the four components of the functional dimension of the OCSE in mind, they can convert more online visitors to become their loyal customers.

Similarly, e-commerce platforms should consider the psychological components involved in designing and implementing the customers'

experience and management strategies in an ethical manner; for example, by increasing information transparency, avoiding the use of “fake scarcity” (e.g., countdown timers that rush the customer) and deploying marketing communications that aim to inform rather than manipulate the customers. If customers perceive the platforms to be trustworthy, convenient and enjoyable, they feel more attachment to these platforms, increasing their likelihood to return to them in the future.

These positive effects *can* be reached without resorting to tactics that enhance impulsive buying. The consideration of the psychological dimension will facilitate an e-commerce platform to increase its loyal base of customers, customers who will contribute to the platform's growth and success, without compromising ethics and sustainability.

6.4. Limitations and future research

This study has several limitations, which translate to formidable opportunities for further research. Firstly, we executed the empirical examination in only one country, which may limit the generalizability of the findings because the characteristics of e-commerce platforms, regulatory infrastructure and cultural dynamics often vary depending on geography and demographics. For this reason, we would suggest that researchers endeavor to carry out similar studies in other contextual settings; this effort can not only offer verification for our findings, but also produce interesting discoveries regarding how cultural factors affect impulsive online shopping.

Secondly, our study has only used cross-sectional data to measure the constructs, while customers' experiences, attitudes and behaviors can change over time. Future research can benefit from designing and applying longitudinal study designs that will study customers over time. Especially important are experimental studies that would test the effect of different website designs on impulsive decision making, whilst also providing data that would help segment shoppers into “more” and “less” impulsive buyers.

As we have suggested in the practical implications, e-commerce platforms should not actively encourage impulsive shopping. However, the ethical, moral and legal boundaries surrounding this issue are very much understudied and future research in this area is highly encouraged.

Among the critical questions are the following, the list is not exhaustive: (1) How can businesses actively support self-control for consumers that are at risk of impulsive shopping behavior? (2) How can e-commerce platforms design features that support sustainable consumption without harming their long-term profit ambitions? (3) What are the effective means to segment customers into impulsive and non-impulsive types and how do we use such segmentations for website personalization? These and other critical questions remain to be addressed in the field of online impulsive buying.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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