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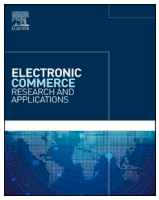

The effect of exploratory behaviour on online shopping stickiness: the role of enjoyment and satiation

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ABSTRACT

Users frequently spend longer than anticipated browsing online stores, resulting in online shopping stickiness, i.e., the intention to prolong navigation time within a browsing session, irrespective of the number of websites visited. This research investigates how exploration behaviours and browsing objectives impact stickiness during online shopping sessions. Specifically, the work analyses what influence exploration modes (specific vs. diversive) and goals (purchase-oriented vs. search-oriented) have on user stickiness, with perceived enjoyment and satiation acting as mediating factors. Using two experiments in the context of online clothing shopping and a field study, this work emphasizes the role of situational browsing elements in shaping stickiness behaviour. The findings enrich e-commerce literature by shifting the perspective from external factors (e.g., product or site attributes) to in-store exploration behaviours. This research offers valuable insights for e-commerce platforms that aim to optimize website interfaces to improve consumer experience and boost consumer retention, such as aligning navigation and content with user intentions and utilizing cross-category suggestions.

1. Introduction

The growth of online shopping (Statista, 2024; European e-commerce report, 2023), particularly among younger consumers (Klarna, 2023), has contributed to a steady annual increase in the time spent shopping online (Data.ai, 2021). Indeed, it sometimes leads users to spend more time than initially planned on their visits to online stores. This is not only due to the volume of information they must analyse and process but also because consuming online content can be associated with leisure and hedonistic experiences (Liu et al., 2020), such that it hooks consumers and makes them want to continue browsing. The ability to attract and retain users during the use or browsing of a website is known as website stickiness, i.e., the attention that individuals show to the e-commerce website, the interaction and amount of time spent, or their desire to stay longer on the website. Capturing and retaining online buyers' attention is important for e-commerce, since prior research has confirmed that stickiness behaviours are indicative of website visitors clinging onto the website (Tangmanee, 2017), which thereby increases the chance of them making a purchase (Lin et al., 2010; Mallapragada et al., 2016).

In this context, the literature has taken an interest in understanding the patterns and behaviours that shoppers follow when browsing online stores. Previous research on consumer engagement in online shopping and browsing sessions has focused on different outcomes, such as page views (Huang et al., 2009), length of visit (Danaher et al., 2006), consumer eye movement (Liu et al., 2017), basket value (Mallapragada et al., 2016), or engagement with retail websites (Demangeot and Broderick, 2016). Previous studies have also examined various determinants of engagement in the online purchasing process, focusing primarily on variables related to website characteristics (Demangeot and Broderick, 2007, 2016; Mallapragada et al., 2016), product attributes (Mallapragada et al., 2016), brand awareness (Liu et al., 2017), and individuals' involvement with the products (Demangeot and Broderick, 2007).

One of the factors that can affect the degree of stickiness a user develops during online shopping is their exploration behaviour.

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Consumers search for products or information by scrolling, clicking, and navigating through various pages, and encounter multiple stimuli along the way (Demangeot and Broderick, 2007). How they engage in this exploratory behaviour varies across individuals and shapes the information they gather and process as well as their overall experience within the online store. When individuals commence a session in an online store, they may adopt one of two exploration modes (Demangeot and Broderick, 2010): to specifically navigate on a single website –typically one they are already familiar with– or to browse and search more diversely across multiple websites and domains. Specific exploration can be associated with more focused navigation, which reduces the time and effort invested and which may help to minimize complexity and cognitive fatigue. In contrast, diversive exploration increases exposure to new information and offers a richer and more stimulating experience, potentially leading to a pleasurable browsing experience.

Moreover, consumers may browse an online store without having specific objectives in mind or they may engage in a more utilitarian, goal-directed search, actively seeking information with the intention of making a purchase decision (Detlor et al., 2003; Dames et al., 2019). In this goal-directed search, individuals may navigate online stores pursuing two exploration goals (Moe, 2003): to deliberate and seek information for future purchases, i.e., search-oriented exploration, or to seek information for an immediate purchase, i.e., purchase-oriented exploration. Search- and purchase-oriented exploration can be viewed either as a recreation or leisure activity that offers enjoyment and escape, or as an effort made with the intention of gaining an informed purchase decision (Maity and Arnold, 2013).

These exploration conditions (mode and goal) during navigation can affect how online browsing and shopping are perceived – either as a hedonic activity that triggers enjoyment or as an activity that leads to consumer satiation (Sevilla et al., 2018) – which will ultimately determine online shopping stickiness behaviour. Sevilla et al. (2018) indicate that in the extant literature the satiation-enjoyment-variety seeking triad mostly applies to traditional brick and mortar settings and that research should focus on determining these aspects in the online environment.

Understanding how individuals navigate the online store is thus essential for designing more efficient stores in terms of content presentation and structure and of ensuring that they accommodate different exploration styles. It is also crucial for enhancing the user experience, making shoppers feel comfortable and so enjoying the process of searching and purchasing. However, despite the increasing importance of online shopping experiences, there is a significant gap in understanding how individuals' exploration behaviours influence their experience during an online session. Although different forms of exploration behaviour have been characterized, their impact on online shopping stickiness during a navigation session remains underexplored. This gap is critical, as exploration behaviours directly shape the way consumers interact with digital environments, potentially altering their engagement and decision-making processes. In a competitive e-commerce landscape, companies that understand and optimize consumer exploration behaviour can gain significant advantages. Moreover, the ability to identify whether users become engaged with the online store during a session to the point of stickiness, allows businesses to tailor interactions and their offers more effectively, thereby enhancing both customer experience and loyalty. Companies that use advanced algorithms to personalize browsing experiences and product recommendations, demonstrate how this type of knowledge can directly improve customer engagement and conversion rates. Understanding these dynamics not only contributes to theoretical insights but also provides practical strategies for boosting retention and sales in the digital marketplace.

Based on the above, our general aim is to analyse exploration situations on websites that lead to a higher degree of stickiness amongst consumers, understood as the desire to continue browsing. This study thus addresses the following research questions: (1) To what extent do exploration mode in online stores (specific versus diversive) and exploration goals (purchase-oriented versus search-oriented) lead to online shopping stickiness? (2) How do enjoyment and satiation moderate the impact of the exploration mode and the browsing goal in online shopping stickiness?

We address these questions through two experiments and a field study in the context of young people's online clothing purchases. Clothing purchases serve as a prime example of online shopping, where the potential for stickiness is evident, since the number of hours dedicated to online shopping grows every year. Notable examples include China's e-fashion brand Shein (Data.ai, 2021).

The current research makes several theoretical contributions. First, we advance current understanding of browsing behaviour in online stores and depart from studies that focus on characteristics external to the individual (product or store characteristics). Instead, we focus on the characteristics of in-store exploration (mode and goals), a previously unmapped area. Second, unlike other works that focus on analysing specific stages of the conversion funnel (Mallapragada et al., 2016), we examine the varied objectives of browsing sessions. In some cases, individuals progress through the funnel stages – searching and purchasing – while in others, searching without any immediate intent to purchase serves as a goal in itself. Third, considering that browsing in web stores is also perceived as a hedonic and leisure experience, we examine the mediating role of the bright side and dark side of the experience, i.e., perceived enjoyment and satiation.

As for practical implications, this study provides valuable insights into designing and optimising e-commerce environments. Understanding consumers' exploration modes and goals allows online retailers to personalise the shopping experience, not only in terms of content but also in terms of timing and users' intentions. The findings to emerge on the exploration mode highlight the significance of product and store diversity; for instance, cross-category recommendations (e.g., suggesting jeans when browsing hoodies) can enhance perceived variety, while well-structured website designs with distinct sections help to convey an in-store sense of variety. Additionally, recognising the exploration goal–whether search-oriented or purchase-oriented–allows retailers to dynamically adapt the site experience. For example, when users are seeking information, offering greater variety is advantageous; when they are closer to making a purchase, it is more effective to focus on the specific products they are interested in, narrowing down options and stressing relevance. These insights can help develop intelligent navigation systems and recommendation engines that are more adapted to the user context, ultimately increasing engagement, satisfaction, and conversion rates.

The paper is organised as follows: first, we review the concepts of website stickiness and explorative online behaviour and then present our hypotheses. Next, we conduct two experiments. In the first, we examine the impact of exploration mode (specific vs. diversive) on stickiness, together with the mediating effects of enjoyment and satiation. In the second experiment, we investigate how exploration goals (exploration-oriented vs. purchase-oriented) influence stickiness, again analysing the moderating effects. This study is conducted in a multi-product context with varied store manipulations, thereby extending the insights gained from the first experiment. In a third study, we conduct a survey to examine the impact of exploration mode and goals in a real-world context. Finally, we summarise the key findings, discuss the theoretical and managerial implications, and suggest avenues for future research.

2. Conceptual framework and literature review

2.1. Website stickiness and online shopping stickiness

Website stickiness is a pivotal concept in the realm of online commerce and reflect website ability to attract and retain users effectively (Olbrich and Holsing, 2011; Friedrich et al., 2019; Tangmanee, 2017). Previous research has shown that the attraction and retention capacity

of virtual markets is essential in the context of e-commerce in terms of generating sales transactions (Campbell et al., 2013; Kumar and Ayodeji, 2021; Lin et al., 2010; Friedrich et al., 2019; Zott et al., 2000).

The concept of stickiness has been employed in the literature from two different approaches (Friedrich et al., 2019). From a first approach, some studies consider website stickiness intentions as user intentions to utilize a website as part of their normal activities or as an embedded routine (Li et al., 2006; Lin, 2007; Kumar Roy et al., 2014; Wang et al., 2016; Xiaozhou, 2019; Wu et al., 2021; Goyal and Dutta, 2021; Qu et al., 2023; Pang et al., 2024). These studies associate stickiness to customer

Table 1
Online shopping stickiness behaviour during a browsing session.

Authors	Construct and dimensions	Drivers and results	Method	Data	Analysis
Zott et al. (2000)	Stickiness is the ability of websites to draw and retain customers	Means to create stickiness: - Reward customers for their loyalty. - Personalise the product or customise the service. - Build virtual communities. - Establish their reputation for trust in the transaction.	Qualitative study	Survey of 30 European e-commerce companies	
Moe (2003)	They established a typology of shopping sessions according to individuals' behaviour: direct buying, hedonic browsing, search and deliberation, and knowledge-building visits	Navigational pattern (general content and page view) –observable behaviour at the site	Analytical	Analysis of shoppers' behaviour on a website during seven weeks (e-commerce site that sells nutrition products) using data from NetConversions records (page view, time spent, action taken on each page, submission of a purchase transaction) 7,143 visits	Cluster analysis
Huang et al. (2009)	They analyse browsing behaviours and measure search time and pages viewed.	Search vs experience goods Consumer feedback Authoritative third-party information Experience simulation	Analytical	ComScore data set of website visitation and transaction activity. Data from 210 transactions.	Regression models
Lin et al. (2010)	Stickiness is the amount of time a person spends on a website during a visiting session (session stickiness). They measure the length of a visiting session and the number of pages accessed.	Analyse the impact of stickiness on conversion rate. Differentiate search and experience goods.	Analytical	Panel data from comScore Media Metrix that consist of detailed click-stream data from 100,000 volunteer households	Multivariate ordinary least square linear regression analysis, using conversion rate as the dependent variable
Olbrich and Holsing (2011)	Consumer online behaviour within social shopping communities, measured by means of clickstream data (click-out) Website stickiness is understood as users staying longer on the website.	- Online Consumer Search Behaviour (view time, average view time per page, usage of product-detail sites) - Direct shopping features - User-Generated Social Shopping Features	Analytical	Within-site study. Data from several sessions in SSC: pages viewed, viewing duration, user actions (such as whether a user is viewing a product-detail site). They analyse 2,727,634 sessions	Logit model Dependent variable: click-out (binary coded)
Xun (2015)	They consider visit duration as a proxy for web stickiness.	Drivers: reach, search engine, page views, bounce from the website, web traffic, links to the site.	Analytical	Web analytics data from 94 UK e-stores	Partial least squares
Demangeot and Broderick (2016)	Website customer engagement during a website visit as the process of developing cognitive, affective, and behavioural commitment. They consider four dimensions: behavioural, interaction, activity, and communication engagement.	Website characteristics: - Information exploration potential - Experiential exploration potential - Sense-making potential	Survey research method	301 volunteer UK-based students and university staff They have to navigate an online bookstore before answering the questionnaire	Structural equation modelling
Mallapragada et al. (2016)	Online shopping behaviour Browsing stage –visit duration and page views Purchasing stage –basket value	Website characteristics (website scope, website functionality) Product characteristics (hedonic vs utilitarian)	Analytical	Household panel data 773,262 browsing sessions across 43 product categories from 385 unique websites.	Multivariate mixed-effects Type II Tobit model
Tangmanee (2017)	Stickiness behaviours are indicative of website visitors clinging onto the website. Stickiness is measured through three metrics: number of clicks per user, number of pages viewed per user, and time spent per user.	Purchasers vs non-purchasers Search vs experience goods	Analytical	Transaction-level household panel data from the ComScore Web Behavior Panel. 27,528 visit sessions	Correlation coefficients and Chi-square test
Friedrich et al. (2019)	Website stickiness indicates how much attention a website receives from its users: consumers' amount of time spent and interaction while using a website. Stickiness is measured as number of clicks per user, number of pages viewed per user, and time spent per user.	Social commerce feature richness Cognitive and affective factors: perceived usefulness, perceived enjoyment, and trust	Experiment	Controlled online experiment 1 x 4 between-subjects design, manipulating four incremental levels of social commerce feature richness simulating a realistic e-commerce scenario. 212 participants	MANCOVA Partial Least Squares

loyalty as well as continued use and reuse of a website. A second approach considers website stickiness as a behaviour that characterizes a browsing session through the website, i.e., consumers' actual website usage behaviour during a visiting session (Demangeot and Broderick, 2016; Friedrich et al., 2019). From this perspective, stickiness is conceptualized as the amount of time a person spends on a website during a visiting session (Olbrich and Holsing 2011) and the interaction while using a website in terms of the number of clicks or pages viewed (Lin et al., 2010; Tangmanee 2017; Friedrich et al., 2019).

We focus on this second perspective and examine online shopping stickiness as the intention to spend more time navigating during a browsing session. This form of stickiness –centred on browsing behaviour– does not necessarily involve cognitive or affective engagement with a website. Indeed, during an online shopping session, individuals can browse one or more stores, such that the concept of online shopping stickiness is not limited to a single website but to browsing behaviour during the whole session, regardless of the number of websites visited. Moreover, unlike traditional metrics such as website traffic or bounce rates, stickiness behaviour during a browsing session delves deeper into the quality of user interaction. It underscores the immersive and compelling experience created by websites to keep users actively involved and emphasizes prolonged engagement, the amount of time spent, or the desire to stay on websites longer (Huang and Benyoucef, 2015; Xun, 2015; Lin et al., 2010). This behaviour can also occur when the user views content on social networks (Zhang et al., 2017; So et al., 2024) or in immersive contexts such as metaverse retailing (Zhang et al., 2025). Social networks, websites or e-commerce offer content that engages, that motivates individuals to continue browsing beyond the time initially planned or desired.

Online shopping stickiness should not be confused with impulse buying, addictive consumption, or flow state, despite the obvious links to such phenomena. Unlike addictive use –which implies a disorder involving both impulsivity and compulsivity and that provokes tension prior to the act (Rose and Dhandayudham, 2014)– stickiness manifests itself once browsing has commenced, i.e. during the visit to a website, but not before. The individual does not necessarily feel a strong need to surf the web or to use social networks. However, once they begin or log on, they do find it challenging to stop and they show a desire to continue. Nor is it possible to equate online shopping stickiness with flow. Flow describes a condition in which an individual is fully and actively immersed in an activity, and it is characterized by intense, focused concentration on the present moment (Nakamura and Csikszentmihalyi, 2002). Flow during online navigation implies such deep concentration that little attention is available for anything else, and self-awareness fades (Novak et al., 2000). In contrast, stickiness may occur during browsing sessions that do not require high levels of concentration, deep immersion, or intense absorption, and often take place during moments of leisure or rest. Accordingly, while some studies have examined how a flow state can enhance stickiness (Pang et al., 2024) stickiness may emerge without a flow state.

Online shopping stickiness behaviour during a visiting session has been analysed in different studies –as summarised in Table 1. As regards the concept and measurement of website stickiness, previous studies have primarily focused on metrics such as the number of pages viewed, time spent on the site, and the number of clicks (Huang et al., 2009; Lin et al, 2010; Olbrich and Holsing, 2011; Xun, 2015; Mallapragada et al., 2016; Tangmanee, 2017; Friedrich et al., 2019). Indeed, website stickiness has focused on behaviour in a single store.

Factors influencing the level of stickiness have included product characteristics (Huang et al., 2009; Lin et al., 2010; Mallapragada et al., 2016; Tangmanee, 2017) or website characteristics (Zott et al., 2000; Demangeot and Broderick, 2016; Mallapragada et al., 2016; Friedrich et al., 2019; Pang et al., 2024). However, there is a lack of research analysing how individuals' exploration behaviour influences their experience during the course of a session. This gap has been identified in a recent systematic literature review, which concludes that research on stickiness is fragmented and has largely neglected the dynamics of non-transactional behaviours, such as exploratory browsing (Vyas et al., 2025). The only study to consider exploration is the work of Demangeot and Broderick (2016), although they analyse the information and experiential exploration potential of the website on website engagement, and not users' actual exploration behaviour.

Methodologically, most studies have relied on panel data to capture actual user activity during browsing and shopping sessions across various websites (Huang et al., 2009; Lin et al., 2010; Olbrich and Holsing, 2011; Mallapragada et al., 2016; Tangmanee, 2017), web analytics (Xun, 2015), or on survey research methods (Demangeot and Broderick, 2016; Qu et al., 2023; Pang et al., 2024). These studies quantify stickiness as time spent, pages visited, and actual spending. Only Friedrich et al. (2019) employed an experimental approach to examine the determinants of website stickiness, specifically analysing the impact of social commerce feature richness.

The current study seeks to contribute to existing research on online shopping stickiness by (1) conceptualizing online shopping stickiness as the intention to spend more time navigating during a browsing session and not on just one website; (2) assessing what impact exploration conditions (including both exploration mode and exploration goal) have on stickiness; and (3) analysing the mediating role of consumer experience during the shopping session.

2.2. Exploratory online behaviour

Exploration has been conceptualized as activities aimed at investigating problems in new environments (Berlyne, 1960). Exploratory behaviours are key in the field of marketing since they are linked to buying behaviour (Baumgartner and Steenkamp, 1996). Exploratory behaviours include recreational shopping (Guiry et al., 2006) and browsing on online websites (Demangeot and Broderick, 2010).

In the field of online shopping, Demangeot and Broderick (2010) define exploration as moving from one part of the website to another, which results from the influence of the stimuli present on each webpage and from consumers' inner motivations. In line with this definition, in online shopping exploration we distinguish between the exploration mode –the variety of stimuli encountered on websites– and the exploration goal –the consumer's objectives during the navigation session.

Exploration mode. If we focus on external stimuli –and specifically on the number of stimuli the individual attends to– website exploration can have a diversive or a specific character. Diversive exploration is directed towards a range of stimuli (Berlyne, 1963; Demangeot and Broderick, 2010) while specific exploration is directed towards a particular stimulus. Berlyne (1966) indicates that exploratory specific responses involve the intensification of stimulation from a partial source, whereas diversive exploration occurs when stimulation comes from different sources, offering an optimal amount of variety, novelty, change, or surprise.

In the context of online shopping, exploration can be diversive when it involves exposure to a wide range of stimuli or information across different webpages, products, or websites. It can also be specific when it involves continued exposure to particular stimuli, products, or websites (Demangeot and Broderick, 2010). Following this idea, exploration mode in the current research is assessed as the number of products and online stores an individual explores in each browsing session.

In some sessions, individuals may engage in specific exploration and concentrate on a single product or store. This behaviour may stem from their current interest –users are primarily motivated by practical needs (Sánchez-Franco and Roldán, 2005)– or be influenced by factors like trust, loyalty, satisfaction with previous purchases, or a desire to reduce uncertainty and risk (Guo et al., 2023; Casaló et al., 2008).

Conversely, in other sessions individuals may prefer a more diversive exploration approach, searching for multiple products or browsing across various brands and stores. This behaviour is often associated with variety-seeking, curiosity-driven responses, or a tendency toward

innovation (Demangeot and Broderick, 2010). This aligns with classical consumer behaviour studies, which view exploration as driven by experiential, entertainment, and excitement factors (Holbrook and Hirschman, 1982; Howard and Sheth, 1969).

Exploration goal. Baumgartner and Steenkamp (1996) distinguished two dimensions of exploration consumer buying behaviour: exploratory information seeking and exploratory acquisition of products. This classic distinction remains valid in recent research, which has employed it to analyse how exploratory consumer behaviour influences new omnichannel shopping trends such as webrooming (Herrero-Crespo et al., 2022). Moe (2003) also stated that consumers may enter an e-commerce website targeted towards an immediate purchase or in order to acquire information to make a future purchase. We thus distinguish between two situations depending on the exploration goals; search-oriented exploration and purchase-oriented exploration.

Search-oriented exploration refers to situations in which the individual has no immediate purchase goal but is looking for information or inspiration for future purchases. The individual navigates the web for entertainment, curiosity, or with the aim of seeking information for a future purchase. According to Moe (2003), this would encompass situations of hedonic browsing or knowledge-building behaviour.

Purchase-oriented exploration indicates situations in which the individual seeks product information with the aim of making an immediate decision and of buying, i.e., they follow a search and deliberation behaviour. This type of exploration encompasses the two stages of online shopping behaviour (Mallapragada et al., 2016); the browsing stage, wherein the consumer spends time viewing a number of webpages, conditional upon which there is then a purchase stage, wherein a basket of certain value is realized.

The current research thus examines the effect of the exploration mode (specific versus diversive) and the exploration goal (search-oriented versus purchase-oriented), considering the mediating effect of the perceived enjoyment and satiation caused by the exploration mode.

3. Proposed hypotheses

3.1. Effect of exploration mode: diversive versus specific exploration

Diversive exploration –involving exploration across multiple online stores or products– is conjectured to lead to higher online shopping stickiness compared to specific exploration within a single online store or product. The anticipated higher stickiness under conditions of diversive exploration across online stores is grounded in the idea that diversified exploration maintains user interest and cognitive stimulation. When users engage in diversified exploration, they are motivated by process (Sánchez-Franco and Roldán, 2005) because they encounter a myriad of stimuli and experiences, which leads to prolonged engagement with the platform.

Greater diversity also makes the search or purchase task more challenging and complex, meaning that cognitive effort increases (Wang and Hsiao, 2012). In the context of online shopping, various authors suggest that the level of challenge involved in discovering, analysing, or comparing information positively influences user concentration (Koufaris, 2002; Wang and Hsiao, 2012; Ozkara et al., 2017). A greater diversity of content, products, or pages is also related to adventure shopping behaviour, where shopping is driven by fantasy, excitement, and amusement (Wang et al., 2022), a behaviour that leads individuals to spending more time browsing online. In contrast, when comparison and shopping tasks are less demanding, consumer attention decreases. On the other hand, some individuals may deliberately seek a more focused exploration, centred on a smaller number of stimuli, in order to reduce the stress of information gathering (Demangeot & Broderick, 2010), sensory overload (Doucé and Adams, 2020) or avoid overconsumption.

In other words, diversity keeps the consumer more active and attentive to search and learn from the new store or products. Being actively learning, seeking, and inquiring makes the individual less aware of the time that elapses while searching and increases the intention to continue online shopping. Therefore, we propose the following:

H1. Online shopping stickiness is higher under conditions of diversive exploration compared to conditions of specific exploration.

3.2. Effect of exploration goal: search-oriented versus purchase-oriented exploration

The navigation objective during a shopping session can also impact online shopping stickiness. When exploration is goal-oriented towards making a purchase decision, individuals typically invest more focus and effort in the process (Sánchez-Franco and Roldán, 2005). Even for hedonic or impulse purchases, the need to make a decision often requires greater investment in terms of time and effort in exploring products, comparing options, and considering details. The literature has shown that in social commerce contexts, utilitarian motivations lead to more focused exploration, influencing the user's time spent in the digital environment (Ko, 2020).

Additionally, the anticipation of an outcome –such as purchasing a desired product– and the potential for instant gratification when a product is found and purchased can boost task motivation and engagement. This is similar to scenarios where users are motivated by rewards, as they are willing to "work" towards unlocking them, which leads to greater engagement (Sharif and Woolley, 2022). This leads to a higher degree of stickiness during the session, or to a greater inclination to continue browsing. This contrasts with sessions driven by information-seeking (search-oriented exploration), which may lack a defined purpose (Hoffman et al., 1996) and which do not offer any immediate outcome or benefit.

To sum up, sessions focused on making purchase decisions (purchase-oriented exploration) are expected to exhibit higher online shopping stickiness compared to those aimed solely at information-seeking (search-oriented exploration). Therefore,

H2. Purchase-oriented exploration leads to greater online shopping stickiness than search-oriented exploration.

The exploration goal may also moderate the impact of exploration mode on the level of stickiness. When the goal is to seek information without a specific or immediate purpose, users are likely to feel more engaged if their browsing is diversified across multiple shops. Since there is no pressure to make a product choice, exposure to a variety of stimuli can encourage further browsing and product discovery. In contrast, during purchase-oriented exploration, stickiness may be enhanced when individuals focus on a smaller set of stimuli, which allows them to process information more effectively in order to reach a decision. This effect aligns with the 'paradox of choice' (Schwartz, 2004), which suggests that an overabundance of options can hinder decision-making by increasing complexity and decision costs.

Lleras et al. (2017) observe that when consumers encounter a complex array of product alternatives, they often narrow their focus to a smaller subset for more detailed evaluation, which helps them move forward in the purchase process. However, if consumers need to navigate multiple shops in order to make a purchase, increased complexity and choice overload (Goldstein and Hajaj, 2022) may lead to fatigue, which curbs their interest in continuing to browse. Therefore, we propose that:

H3. In conditions of search-oriented exploration, diversive exploration has a greater impact on online shopping stickiness (H3a), whereas in conditions of purchase-oriented exploration, specific exploration has a greater impact on online shopping stickiness (H3b).

3.3. The mediating role of enjoyment and satiation

Online shopping is often associated with leisure, hedonic experiences, enjoyment, and entertainment (Childers et al., 2001; Fiore and Kim, 2007; Liu et al., 2020). Visually appealing websites and interactive

multimedia content enhance this hedonic experience, allowing individuals to browse products and services, such as fashion or lifestyle items, as a form of entertainment (Fiore et al., 2005).

Enjoyment plays a crucial role in understanding the impact of exploration mode on stickiness. Diversive exploration is expected to increase enjoyment and to lead to a greater intention to continue shopping. Demangeot and Broderick (2010) indicate that diversive exploration aims to relieve boredom and increase arousal through exposure to new stimuli. Diversity presents consumers with a wider range of stimuli such as varied images, organization, and the spatial composition of the online shop, as well as different products, which may evoke feelings of surprise, excitement, and enthusiasm. Online shopping stickiness would therefore be related to the inherent value of the task itself. In this sense, a consumer's decision to continue engaging in an activity is often influenced by the enjoyment they derive from it, which enhances their motivation to keep exploring (Ryan and Deci, 2000; Woolley and Ayelet, 2017). In contrast, specific exploration would reduce arousal either by fulfilling the curiosity associated with a specific stimulus or by returning stress to a more manageable level (Demangeot and Broderick, 2010).

H4. Enjoyment positively mediates the relationship between diversive exploration and online shopping stickiness.

Previous literature has highlighted that navigation goals significantly affect the user's experience and online behaviour (Hoffman and Novak, 1996, 2009). Both search- and purchase-oriented exploration can be perceived as leisure activities that provide enjoyment and a sense of escape, even when they involve cognitive and time-related effort. The literature has highlighted that shopping contributes to pleasure and arousal (Liao et al., 2016) or to well-being (Ekici et al., 2018). However, within a purchase context, it is plausible to expect that the level of perceived enjoyment will be higher when the effort invested in exploration is ultimately rewarded with the acquisition of a product. In contrast, when such an effort does not lead to a purchase, it may be perceived as unproductive or futile, thereby diminishing the overall hedonic experience and, consequently, online shopping stickiness. Therefore, we propose that:

H5. Enjoyment positively mediates the relationship between purchase-oriented exploration and online shopping stickiness.

Exposure to stimuli can, however, also produce negative effects such as satiation. Satiation has been defined as feeling full or feeling beyond capacity or desire (Sevilla et al, 2018). From a psychological perspective, although consumption may remain constant, the perception of satiation may vary as a function of different aspects, such as quantity consumed, interruptions or time between consumption occasions (O'Brien, 2021; Sevilla et al, 2018). One factor influencing satiety is sensory stimulation, known as sensory-specific satiety (Rolls et al., 1981). When individuals are exposed to sensory stimuli associated with the consumption of a particular product, a mental simulation of that consumption occurs, resulting in a satiating effect (Larson et al., 2014).

Therefore, satiation also can mediate the impact of the mode of exploration and online shopping stickiness. Although specific exploration may fulfil curiosity and resolve purchasing uncertainty (Demangeot and Broderick, 2010), prolonged exposure to the same stimuli might lead to satiation, thereby attenuating the intention to continue browsing. Previous studies exploring the effect of sensory overexposure on satiation are based on the repetition of stimuli (Larson et al., 2014; O'Brien, 2021). Shopping at a single online store or focusing on a single product can lead to increased satiation among online shoppers due to repetition, routine, and monotony, as well as the perceived redundancy of stimuli and lack of novelty. These factors can negatively impact the shopping experience and reduce shoppers' motivation to continue browsing or make additional purchases. Put differently, diversive exploration would reduce perceived satiation and increase the level of online shopping stickiness. We therefore propose the following:

H6. Satiation positively mediates the relationship between diversive exploration and online shopping stickiness.

As for the exploration goal, when consumers engage in online store exploration with a purchase-oriented goal, their browsing experience tends to be more purposeful and rewarding, which can mitigate feelings of satiation (Redden, 2008). Purchase-oriented exploration involves a higher degree of goal alignment and perceived progress, which reduces cognitive overload (Kakaria et al., 2023) and the likelihood of boredom or fatigue. Moreover, the sense that one's actions are directly contributing to a valued outcome (i.e., making a purchase) act as a buffer against the monotony of repetitive tasks and satiation. In contrast, search-oriented exploration –which often lacks a clear or immediate reward– may be felt to be cognitively taxing and less fulfilling. Consequently, the goal-directed nature of purchase-oriented exploration not only fosters a more engaging experience but also lowers perceived satiation, thereby increasing online shopping stickiness.

H7. Satiation positively mediates the relationship between purchase-oriented exploration and online shopping stickiness.

The proposed model can be seen in Fig. 1.

4. Method

The empirical research adopts a multi-method approach, combining two experiments and a field study on online clothing shopping among young people. Younger consumers are the segment who are most attracted to online shopping, and who spend the most time in online shopping environments. Data indicate that online purchases among Generation Z increased nearly twice as fast as other generations in 2023 (McKinsey and Company, 2023). Additionally, Statista (2023) reports that approximately 73% of young people aged between 18 and 34 make online purchases at least once a month, a trend that is especially evident in the fashion sector. According to Wunderkind (2025), nearly half of Generation Z and millennials engage in online shopping for fashion, with these groups dedicating a significant amount of time to browsing for clothing, jewellery, and accessories. This high level of engagement with online fashion shopping highlights the importance of understanding this consumer group.

The choice of fashion stores is justified by the fact that it is one of the main products purchased online, together with leisure, travel, footwear and accessories, health, and beauty (Eurostat, 2023). Furthermore, clothing purchases can have a hedonic nature, which is reinforced by the sensory stimulation offered by online clothing stores. In the virtual store, consumers observe models wearing the garments, not only through static images but also on some occasions interspersed with videos. These stimuli activate a mental simulation in the consumer of using or consuming those garments, which can be the basis of enjoyment or, if repeated with multiple garments throughout the search and purchase process, could lead to satiation.

For the experiments, online stores specialized in clothing were chosen. These offer fashion for young people and are among the best known or most frequently visited by Spanish consumers (Elogia Fashion Lab, 2023; Esdemarketing, 2023).

In Study 1, we tested the effect of the exploration mode (specific versus diversive) on online shopping stickiness (H1) as well as the mediating effects of enjoyment (H4) and satiation (H6). In this experiment, two sources of diversity were considered; diversity in terms of product category (garments), and diversity in terms of the number of stores visited.

In Study 2, we tested the effect of exploration goals (search-oriented vs. purchase-oriented) on online shopping stickiness (H2), the moderating effect of the exploration goal (H3), and the mediating effects of enjoyment (H5) and satiation (H7). In this study, we propose a context of a variety of products, with a manipulation of store variety that allows us to extend the findings of H1, H4, and H6.

Finally, Study 3 consists of a field study designed to test H1, H2 and H3, and to provide ecological validity in a real-world context. This study focuses on analysing online navigation behaviour with a sample of young adults and relies on the previous controlled experiments to

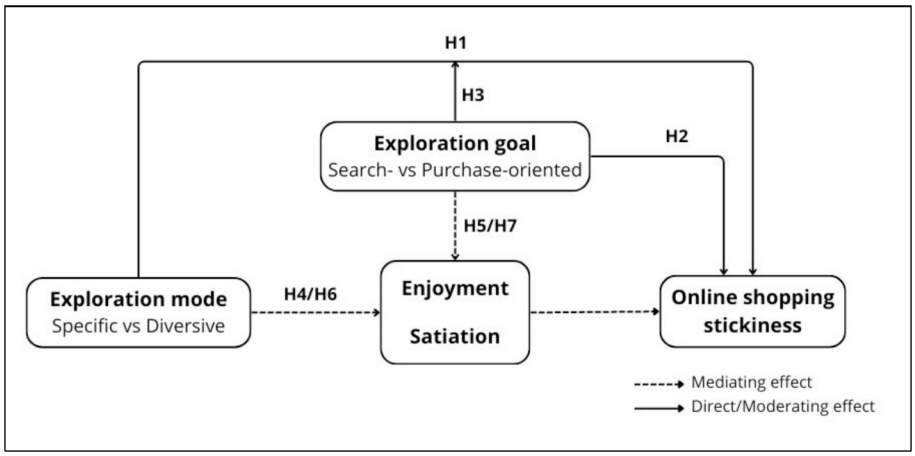

Fig. 1. Proposed hypotheses.

demonstrate the underlying psychological mechanisms.

The experiments were conducted in the university's computer laboratories, across three different time-points and during multiple sessions throughout the academic year. The experimental tests related to Study 1 were conducted at the beginning of the first semester. Participants were divided into three groups and invited to attend separate sessions depending on the experimental condition (specific exploration, diversity of products, and diversity of stores). The tests corresponding to Study 2 were conducted during the second semester. Participants were invited to four different sessions depending on the condition of the exploration mode (specific or diversive) and the exploration goal (search-oriented or purchase-oriented). Data for Study 3 were collected via an online panel to access the specific target population of young adults in their natural environment.

5. Study 1

As explained earlier, in Study 1 we analyse the effect of the exploration mode on online shopping stickiness (H1) and the mediating effects of enjoyment (H4) and satiation (H6).

5.1. Design, sample, and procedure

We used a one-factor between-subjects design with three groups (specific exploration vs diversity of products vs diversity of stores). A total of 164 undergraduate students participated in this study in exchange for course credits. Participants were randomly assigned to one of the three groups. After eliminating some individuals who had not completely filled in the questionnaire, the final sample consisted of 155 individuals ($n_{\text{specific exploration}} = 54$, $n_{\text{diversity of products}} = 51$ $n_{\text{diversity of stores}} = 50$; 41.6% women).

In the control group, "specific exploration", individuals were asked to navigate in an online clothing store (zara.com). They were asked to browse through the trousers section and to look for inspiration to buy a pair of trousers. In the group of "diversity of products", individuals were also asked to navigate in a Zara online store but were asked to browse throughout the store and to look for inspiration to buy a casual outfit that includes several products (trousers, skirts or dresses, T-shirts or shirts, jumpers or sweatshirts, and jackets, jackets or coats). Finally, in the group of "diversity of stores", individuals were asked to look for inspiration to buy a pair of trousers, but searching in several online stores (zara.com, mango.com, pullandbear.com, myspringfield.com). All the subjects had 20 min to browse and discover products that might interest them. In each experimental group there were three people to check that subjects carried out the task they had been asked to do and did not browse any other sections of the shops apart from those indicated.

5.2. Manipulation check

To assess the manipulation of exploration mode, we used two items on five-point semantic differential scales ("The task has been concrete/varied"; "The task has been specific/diverse"; $\alpha = 0.834$), which were averages to build a measure of perceived diversity.

We found significant differences between the three groups ($F(2, 152) = 15.38$, $p < 0.01$). Participant perception of diversity was significantly stronger in the two groups of diversive exploration (diversity of products: $M = 3.25$, $SD = 1.22$; diversity of stores: $M = 2.63$, $SD = 1.08$) than in the group of specific exploration ($M = 2.05$, $SD = 1.01$). Manipulation of the exploration mode thus proved effective. In addition, there was a significant difference between the two diversity groups ($d = 0.62$, $p = 0.016$), i.e., the perception of diversity was greater when individuals had to search for different products in a single store than when they had to search for a single product in different stores.

5.3. Measures

Items were measured on a 5-point scale. To measure the degree of online shopping stickiness, two indicators were used to cover the whole positive and negative spectrum of the concept. Participants rated their willingness to continue navigating ("I would have liked to continue browsing the online store/s longer") and their desire to change ("If I had to continue browsing, I would prefer to do it in other online stores"). The first indicator reflects the degree of stickiness to the online store/s in positive terms, while the second indicator reflects the opposite, i.e. the lack of stickiness to the current websites and the preference for a change. We measured satiation using three items ("I ended up saturated with everything I saw"; "In the end I was tired of the visit"; "I ended up bored with the visits to the store/s") ($\alpha = 0.926$) and three items to measure enjoyment ("I found the store/s entertaining"; "The store was pleasant for me"; "I greatly enjoyed myself in the store/s") ($\alpha = 0.878$).

We considered three control variables: involvement towards buying clothes, involvement towards buying clothes online, and attitude towards the brand stores. We used three items from Zaichkowsky (1994) to measure individuals' involvement towards buying clothes and accessories ("For me, buying clothes and accessories is an important/interesting/attractive activity") ($\alpha = 0.804$) and to measure individuals' involvement towards buying clothes online ("For me, buying clothes online is an important/interesting/attractive activity") ($\alpha = 0.851$). One item measured the attitude towards each brand ("I like brand X"). In the context of several stores, we calculated the average of the attitude towards the four brands. It was found that women show a more positive

attitude towards brands (F(1, 152) = 12.51, p = 0.001), greater involvement in purchasing clothes (F(1, 152) = 55.21, p = 0.000), and greater involvement in online clothing purchases (F(1, 152) = 19.46, p = 0.000).

5.4. Results

We performed an ANCOVA for each of the dependent and mediating variables, considering three covariates: attitude towards the brands, involvement towards buying clothes, and involvement towards online clothing purchases (Fig. 2). As for stickiness, the difference between the three groups was not significant for the willingness to continue navigating (F(2, 149) = 2.88, p = 0.059), although we did find that willingness to continue was significantly higher in the group of diversity of products ($M_{diversity\ of\ products}$ = 2.29) than in the group of specific exploration ($M_{specific\ exploration}$ = 1.84). We found significant differences for the desire to change (F(2, 149) = 3.38, p = 0.037). The desire to change was significantly lower in the group of diversity of stores ($M_{diversity\ of\ stores}$ = 3.09) than in the specific exploration group ($M_{specific\ exploration}$ = 3.68). In line with H1, diversive exploration thus impacts online shopping stickiness and increases the willingness to continue navigating while reducing the desire to change.

As regards enjoyment and satiation, the difference between the three groups is significant for enjoyment (F(2, 149 = 3.03, p = 0.05). There is a difference between the group of diversity of stores ($M_{diversity\ of\ stores}$ = 3.16) and the group of specific exploration ($M_{specific\ exploration}$ = 2.79). Finally, there were no significant differences for satiation across the three groups (F(2, 149) = 2.31, p = 0.103), although the degree of satiation is significantly greater in a situation of specific exploration ($M_{specific\ exploration}$ = 3.82) than in a situation of product diversity ($M_{diversity\ of\ products}$ = 3.30).

As for the covariates, involvement in online clothing purchases has a significant effect on enjoyment (β = 0.235, p = 0.010), on satiation (β = -0.342, p = 0.017), and willingness to continue (β = 0.399, p = 0.001). Attitude towards the brand impacts enjoyment (β = 0.448, p = 0.000), willingness to continue (β = 0.286, p = 0.004), and the desire to change (β = -0.233, p = 0.043).

To test the mediating effect of enjoyment (H4) and satiation (H6), we conducted a mediation analysis using Hayes' PROCESS Model 4 with 10,000 resamples. Results are shown in Table 2. Since the exploration mode has three categories, we performed a multi-category estimation.

Results show that diversity of stores mainly increases perceived enjoyment (β = 0.367, p = 0.022). Perceived enjoyment increases the willingness to continue navigating (β = 0.315, p = 0.000) and reduces the desire to change (β = -0.301, p = 0.021), i.e., it reinforces stickiness. The mediating effect of enjoyment on the willingness to continue is significant for diversity of stores (Effect = 0.115, $BootCI_{95\%}$ = [0.014, 0.293]). Enjoyment also mediates the effect of diversity of stores on the desire to change (Effect = -0.111, $BootCI_{95\%}$ = [-0.315, −0.004]). The results therefore support H4 when exploration is diversive in stores.

In contrast, diversity of products reduces satiation (β = -0.518, p = 0.033), and the degree of satiation has a negative impact on the willingness to continue (β = -0.420, p = 0.000). The mediating effect is therefore only positively significant for the diversity of products (Effect = 0.217, $BootCI_{95\%}$ = [0.027, 0.419]), such that we find support for H6 when exploration is diversive in products.

5.5. Discussion

Study 1 demonstrates how, in line with H1, diversive exploration –whether across products or stores– enhances user online shopping stickiness. When users find diversity, they are more inclined to continue browsing and are less likely to switch to other options, suggesting that diversity can make the browsing experience more engaging and less monotonous.

Additionally, enjoyment emerges as a crucial mediator when there is store diversity, thereby supporting H4. Greater enjoyment leads to a stronger willingness to keep browsing and lowers the tendency to switch. This finding highlights the importance of crafting enjoyable shopping experiences when seeking to boost user retention.

Finally, in line with H6, satiation also has a mediating effect on online shopping stickiness, but only when there is diversity of products. This suggests that offering varied options can help prevent tiredness and boredom and can prolong user engagement by reducing the tendency to satiation.

6. Study 2

In Study 2, we aimed to replicate and extend the previous findings (H1, H4, and H6) in a context of diversity of products, with a manipulation in the number of stores. Moreover, we tested the effect of exploration goal (search-oriented versus purchase-oriented) on stickiness (H2), as well as the interaction effect of the exploration mode and the exploration goal (H3), and the mediating effects of enjoyment and

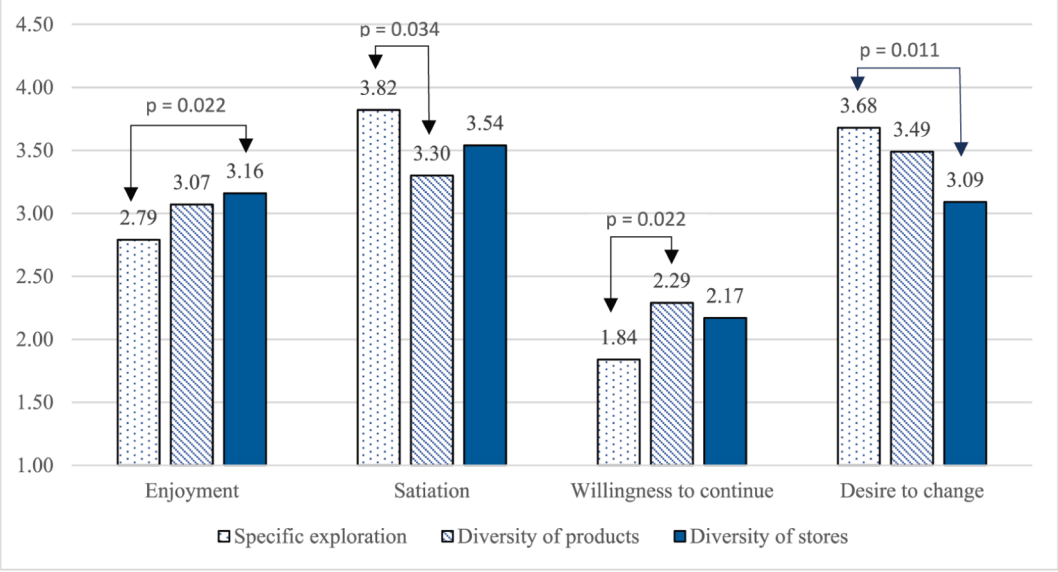

Fig. 2. Results of ANCOVA.

Table 2
Results of the mediation analysis (Study 1).

	Enjoyment (M1)			Satiation (M2)			Willingness to continue (Y_1)			Desire to change (Y_2)		
	b	SE	p	b	SE	p	b	SE	p	b	SE	p
Constant	0.031	0.331	0.924	5.996	0.516	0.000	1.628	0.450	0.000	3.990	0.680	0.000
Exploration (X1) *0=Specific exploration 1 = Diversity of products*	0.284	0.155	0.068	−0.518	0.241	0.033	0.142	0.146	0.331	−0.040	0.220	0.857
Exploration (X2) *0=Specific exploration 1 = Diversity of stores*	0.367	0.158	0.022	−0.275	0.247	0.268	0.096	0.149	0.522	−0.445	0.225	0.050
Enjoyment (M1)							0.315	0.085	0.000	−0.301	0.129	0.021
Satiation (M2)							−0.420	0.056	0.000	0.121	0.083	0.145
Involvement clothes	0.095	0.091	0.300	−0.090	0.142	0.525	0.016	0.084	0.848	0.115	0.128	0.370
Involv. online shopping	0.235	0.091	0.010	−0.342	0.141	0.016	0.182	0.086	0.037	−0.024	0.130	0.851
Attitude to brand(s)	0.447	0.079	0.000	−0.182	0.122	0.138	0.068	0.081	0.397	−0.076	0.122	0.533

	Willingness to continue (Y_1)				**Desire to change (Y_2)**			
Indirect effects	Effect	Boot SE	Boot $LLCI_{95\%}$	Boot $ULCI_{95\%}$	Effect	Boot SE	Boot $LLCI_{95\%}$	Boot $ULCI_{95\%}$
X1 → Enjoyment → Y_i	0.090	0.058	−0.001	0.225	−0.086	0.065	−0.246	0.003
X2 → Enjoyment → Y_i	0.115	0.073	0.014	0.293	−0.111	0.081	−0.315	−0.004
X1 → Satiation → Y_i	0.217	0.101	0.027	0.419	−0.063	0.056	−0.193	0.028
X2 → Satiation → Y_i	0.115	0.103	−0.081	0.325	−0.033	0.042	−0.134	0.032

satiation between exploration goal and online shopping stickiness (H5 and H7).

6.1. Procedure

We used a 2 (exploration mode: specific store versus diversity of stores) × 2 (search-oriented versus purchase-oriented). A total of 184 undergraduate students who were randomly assigned to each group participated in this study. Participants had to perform four tasks in online clothing stores. They were asked to search for information to buy (1) sweatshirts, shirts or T-shirts; (2) trousers, skirts or dresses; (3) casual clothing; and (4) various accessories (glasses, jewellery, wallets, bags, socks, etc.). They had ten minutes for each activity.

As regards the exploration mode, participants in the specific store condition had to perform all the tasks in the same online store (www.zara.com). In the diversity of stores condition, each task was performed in a different online store: the first (searching for sweatshirts, shirts or T-shirts) in Zara (www.zara.com), the second (searching for trousers, skirts or dresses) in Mango (shop.mango.com), the third (searching for casual clothing) in Stradivarius if they were women (https://www.stradivarius.com) and Pull & Bear if they were men (www.pullandbear.com), and the fourth (searching for accessories) in Armani (https://www.armani.com).

With regard to the exploration goal, we proposed search-oriented exploration as a moment of seeking inspiration with the sole aim of getting to know the various offerings, whereas purchase-oriented exploration involved searching and deliberation, i.e., the goal of the search was to evaluate products in order to make a decision about the items to be purchased. In the search-oriented condition, participants were therefore asked to navigate in the online store/s, explore it, and, after each task, evaluate whether they had found something they liked. In exchange for their participation, these groups were offered course credits. In the purchase-oriented condition, participants were also asked to navigate in the online store/s and to seek information. However, after each task, they had to choose and indicate the clothes or accessories they wished to buy. In exchange for their participation, subjects were offered the chance to take part in a draw for a €50 voucher to buy the garment(s) they had chosen (all or part).

Participants were randomly assigned to an experimental group. After the first task (all of them navigated in the same store, i.e., Zara), participants were asked to evaluate their willingness to continue, or the desire to change. Finally, after the last task, participants were again asked to evaluate these variables as well as the perceived enjoyment and the degree of satiation after the tasks had been completed.

6.2. Manipulation check

To assess the manipulation of the exploration mode, we measured the degree to which participants had perceived a visual and sensorial varied experience. The value was higher for individuals in diversity of stores ($M = 3.80$) than in a specific store ($M = 3.51$), ($F(1, 182) = 5.678$; $p < 0.05$). There were no significant differences in terms of the exploration goal (searching or purchasing), and the interaction between the exploration mode and the exploration goal was not significant. Perception of a varied experience was not therefore conditioned by the exploration goal.

6.3. Measures

To measure online shopping stickiness, we again used two indicators on a 5-point scale; the willingness to continue navigating ("I would have liked to continue browsing the online store/s longer") and their desire to change ("If I had to continue browsing, I would prefer to do it in other online stores"). As for the mediating variables, we used one item to measured satiation ("I ended up saturated with everything I've seen") and another item to measure enjoyment ("I greatly enjoyed myself in the store/s"). We also considered the three control variables (involvement towards buying clothes, involvement towards buying clothes online, and attitude towards brand stores). As in the previous study, women were also seen to show a more positive attitude towards brands ($F(1, 182) = 36.28$, $p = 0.000$) and greater involvement in the purchase of clothes ($F(1, 182) = 56.68$, $p = 0.000$), as well as greater involvement in online clothing purchases ($F(1, 182) = 9.15$, $p = 0.003$).

6.4. Results

First, a repeated measures analysis was performed considering the value of the dependent variables (willingness to continue navigating through the online store/s and the desire to change) at the initial and final moments. Tests of within-subjects contrasts (Table 3) show that the willingness to continue navigating declines over time –after having performed four tasks– while the desire to change increases. Moreover, we observe that these changes are more evident when individuals navigate in a specific store and when they are in the search-oriented

Table 3
Tests of Within-Subjects Contrasts.

	Dependent variables			
	Willingness to continue		Desire to change	
Source	F	Sig.	F	Sig.
Time	11.941	0.001	6.061	0.015
Time * Exploration mode *0=Specific store 1 = Diversity of stores*	6.210	0.014	4.658	0.032
Time * Exploration goal *0=Search-oriented 1= Purchase-oriented*	4.614	0.033	8.051	0.005

condition (Figs. 3 and 4).

In order to test H1, H2 and H3, we performed an ANCOVA for each dependent variable, considering the main effects of the exploration mode, the exploration goal, and their interaction. The covariates introduced were attitude towards brands, involvement in the purchase of clothing, involvement in online clothing purchases, and the value of the dependent variable at the initial moment (Table 4).

Results for the willingness to continue reveal that the effect of the exploration mode is significant ($F(1,176) = 7.958$, $p = 0.005$). Respondents who were in a specific store reported less willingness to continue than those in a diversity of stores, $M_{specific\ store} = 2.73$ and $M_{diversity\ of\ stores} = 3.17$, respectively. The desire to change is also significantly influenced by the exploration mode ($F(1,176) = 11.945$, $p = 0.000$). Individuals in a specific store indicated a greater desire to change ($M_{specific\ store} = 3.84$) than those in a diversity of stores ($M_{diversity\ of\ stores} = 3.30$). Therefore, results again support H1.

As for H2, the willingness to continue was also influenced by the exploration goal ($F(1,176) = 23.953$, $p = 0.000$), and was lower for individuals searching for information ($M_{search\text{-}oriented} = 2.57$) than for individuals purchasing ($M_{purchase\text{-}oriented} = 3.34$). The effect of the exploration goal was also significant for the desire to change ($F(1,176) = 8.114$, $p = 0.004$). Individuals searching for information display a greater desire to change ($M_{search\text{-}oriented} = 3.78$) than individuals who were exploring in order to make a purchase decision ($M_{purchase\text{-}oriented} = 3.35$). Thus, H4 is supported.

As for H3, the interaction between the exploration mode and the exploration goal was significant for the desire to change ($F(1,176) = 6.891$, $p = 0.007$). As can be seen in Fig. 5, in a search-oriented exploration, individuals show a greater desire to change when they have been in a specific store. This is consistent with our proposal in H3a, since shopping in various online stores (diversity of stores) has a greater effect on online shopping stickiness (less desire to change) when individuals are in a search-oriented exploration. However, in a context of purchase-oriented exploration, the exploration mode (specific store vs. diversity of stores) has no impact on the desire to change. H3b is therefore rejected.

Finally, as for the covariates, involvement towards clothes shows a positive effect on the intention to continue ($\beta = -0.251$, $p = 0.030$), while attitude towards brands was seen to have a significant negative effect on the desire to change ($\beta = -0.433$, $p = 0.000$).

In order to examine the mediation effects of satiation and enjoyment (H4, H5, H6, and H7), we used the PROCESS module available in SmartPLS 4. This allows us to incorporate willingness to continue and a desire to change as control variables at $t = 1$. Results are shown in Table 5.

First, it is confirmed that the diversity of stores reinforces online shopping stickiness through enjoyment (supporting H4), increasing the willingness to continue browsing (Effect = 0.198, $BootCI_{95\%} = [0.061, 0.389]$), and reducing the desire to switch (Effect = -0.075, $BootCI_{95\%} = [-0.210, -0.007]$). Likewise, we find support for H6; the diversity of stores also reinforces willingness to continue through a reduction in satiation (Effect = 0.133, $BootCI_{95\%} = [0.011, 0.317]$), although it does not influence the desire to switch.

As for the mediated effect of the exploration goal, purchase-oriented exploration elicits greater enjoyment than search-oriented exploration and, consequently, leads to a greater willingness to continue browsing (Effect = 0.255, $BootCI_{95\%} = [0.088, 0.466]$) and a lower desire to switch (Effect = -0.097, $BootCI_{95\%} = [-0.217, -0.005]$), supporting H5. Finally, consistent with H7, purchase-oriented exploration also increases the willingness to continue through a reduction in perceived satiation (Effect = 0.156, $BootCI_{95\%} = [0.039, 0.359]$) but has no mediating effect on the desire to switch.

Moreover, the conditional direct effects allow us to observe again that diversity of stores reduces the desire to change in a context of searching (Effect = -0.829, $BootCI_{95\%} = [-1.303, -0.372]$).

The conditional indirect effects show that enjoyment mediates the relationship between the exploration mode and online shopping stickiness in any condition (search-oriented or purchase-oriented exploration). In a situation of diversity of stores, enjoyment increases and thus boost the willingness to continue and decreases the desire to change.

In the case of satiation, we observed an effect of moderated-mediation. In contexts of search-oriented exploration, store diversity positively influences the willingness to continue through a lower perception of satiation (Effect = 0.133, $BootCI_{95\%} = [0.011, 0.317]$).

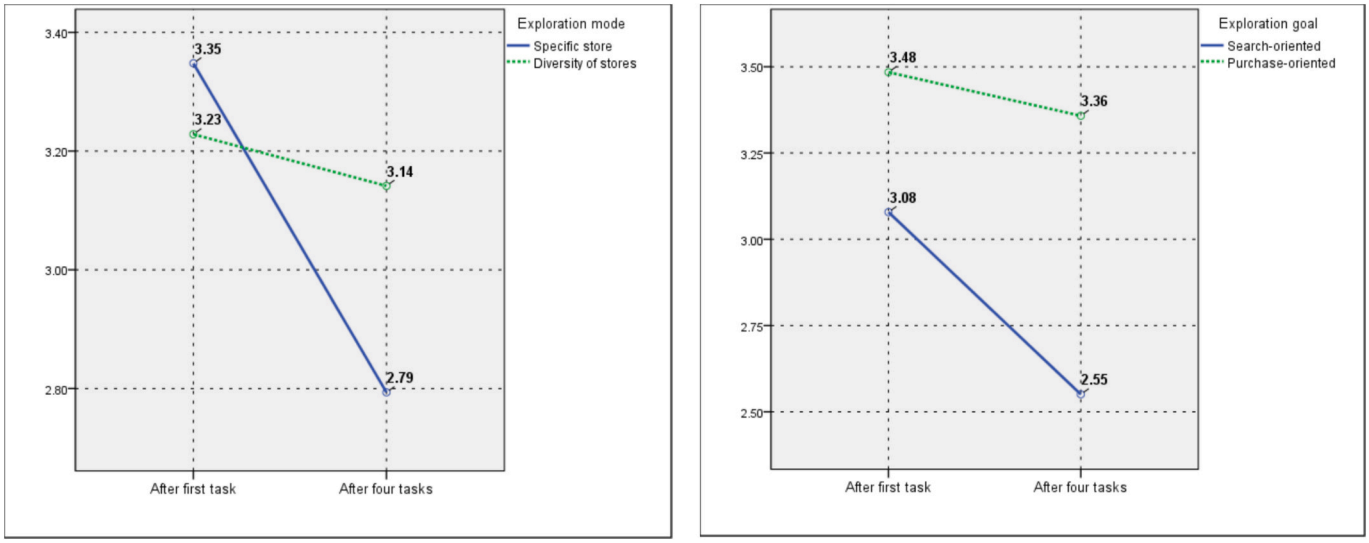

Fig. 3. Estimated marginal means of "Willingness to continue".

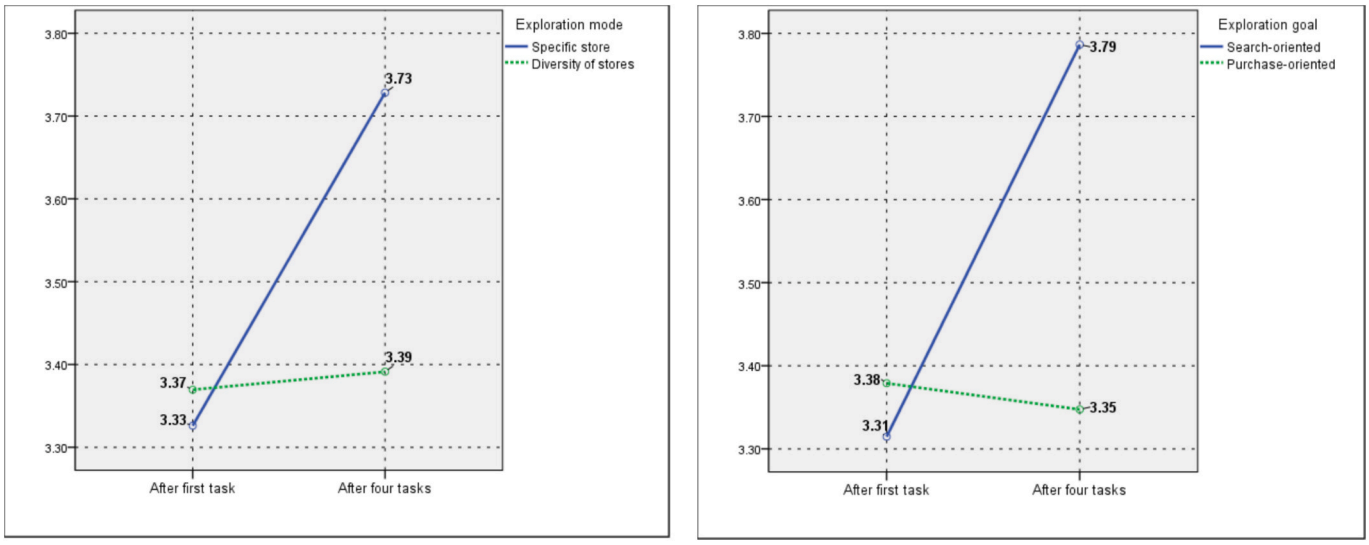

Fig. 4. Estimated marginal means of "Desire to change".

Table 4
Tests of between-subjects effects.

	Willingness to continue		Desire to change	
Source	F	Sig.	F	Sig.
Intercept	8.556	0.003	31.933	0.000
Exploration mode *(0=Specific store 1 = Diversity of stores)*	7.958	0.005	11.945	0.000
Exploration goal *(0=Search-oriented 1= Purchase-oriented)*	23.953	0.000	8.114	0.004
Exploration mode × Exploration goal	0.439	0.501	6.891	0.007
Involvement towards clothes	4.617	0.030	2.913	0.080
Involvement towards online shopping	1.510	0.213	0.518	0.459
Attitude to brand(s)	0.366	0.539	11.939	0.000
Willingness to continue (time = 1)	17.061	0.000	–	–
Desire to change (time = 1)	–	–	25.517	0.000

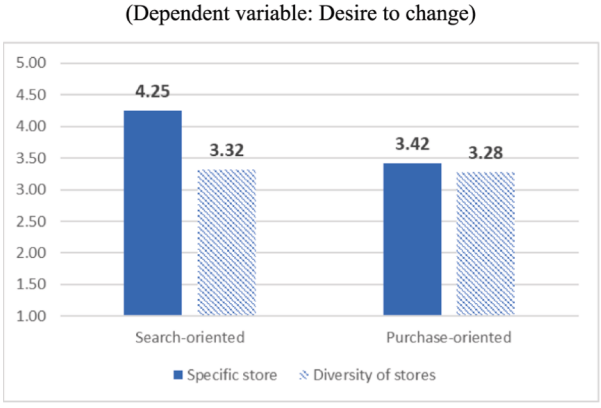

Fig. 5. Interaction between exploration mode and exploration goals (Dependent variable: Desire to change).

However, satiation does not mediate in the context of purchasing.

6.5. Discussion

The results of Study 2 replicate the effects observed in the first study concerning the impact of exploration mode on online shopping stickiness in a context of product diversity. After performing several tasks, users who were engaged in a specific exploration mode (specific store) are less inclined to continue browsing the web and exhibit a stronger desire to switch to different sites when compared to those who engage in diversive exploration (diversity of stores). We also find that the exploration goal influences online shopping stickiness. After performing several tasks, purchase-oriented users report greater willingness to continue and a lower desire to change, i.e., the intention to buy within the session also helps to increase online shopping stickiness.

In terms of the interaction between exploration mode and exploration goal, individuals engaged in search exploration express a heightened desire to change when they have visited only one store. However, when the goal is to purchase, the exploration mode does not significantly affect online shopping stickiness. This result indicates that consumers who are focused on buying a product do not require a broader variety of sites in order to continue shopping.

As regards the mediating role of enjoyment, our findings emphasize the importance of creating a pleasurable shopping experience to enhance online shopping stickiness. As for satiation, it is mainly relevant in information-seeking contexts but plays no major role in purchasing scenarios.

7. Study 3

7.1. Data collection and measures

To address the limitations of the laboratory context and the student sample, we conducted a field study to test H1, H2 and H3. This study was also designed to provide ecological validity by analysing the online navigation behaviour of young adults (aged 25–35) in a realistic setting. This demographic group also represents a key segment of the online fashion market, with well-established purchasing habits.

Given the retrospective nature of the field study, we followed the ecological value guidelines of van Heerde et al. (2021) and relied on the experiments (Studies 1 and 2) to analyse the underlying psychological mechanisms (enjoyment and satiation). We excluded these mechanisms from Study 3 as they represent transient affective states whose retrospective measurement is susceptible to significant memory reconstruction bias (Robinson and Clore, 2002).

Data were collected through a questionnaire in which participants were asked to recall and report their most recent experience browsing online clothing stores (critical incident). Data were gathered via the Prolific platform to ensure a high-quality response panel. To guarantee reliability, several attention-check questions were included. The initial dataset consisted of 200 users, although the final sample comprised 186

Table 5
Results of mediation analysis (Study 2).

	Enjoyment (M_1)			Satiation (M_2)			Willingness to continue (WTC) (Y_1)			Desire to change (DTC) (Y_2)		
	b	SE	p	b	SE	p	b	SE	p	b	SE	p
Constant	−0.377	0.336	0.262	4.475	0.502	0.000	1.663	0.454	0.000	4.475	0.502	0.000
Exploration mode	0.400	0.154	0.010	−0.549	0.274	0.045	0.215	0.202	0.288	3.926	0.738	0.000
0=Specific store												
1 = Diversity of stores												
Exploration goal	0.515	0.179	0.004	−0.645	0.251	0.010	0.527	0.186	0.005	−0.829	0.241	0.001
0=Search-oriented												
1= Purchase-oriented												
Exp.mode × Exp.goal	−0.018	0.231	0.937	0.379	0.342	0.268	−0.072	0.262	0.782	−0.688	0.184	0.000
Enjoyment (M_1)							0.495	0.081	0.000	0.769	0.299	0.010
Satiation (M_2)							−0.242	0.059	0.000	0.251	0.126	0.046
Involvement clothes	0.295	0.089	0.001	−0.038	0.122	0.754	0.157	0.102	0.123	−0.053	0.101	0.598
Involv. online shopping	0.117	0.087	0.177	0.027	0.118	0.818	−0.163	0.071	0.022	−0.354	0.127	0.005
Attitude to brand(s)	0.418	0.092	0.000	−0.265	0.128	0.039	−0.117	0.107	0.272	0.327	0.074	0.000
WTC (t = 1)							0.148	0.068	0.030			
DTC (t = 1)										4.475	0.502	0.000

	Willingness to continue (Y_1)			**Desire to change (Y_2)**		
Indirect effects	Effect	Boot $LLCI_{95\%}$	Boot $ULCI_{95\%}$	Effect	Boot $LLCI_{95\%}$	Boot $ULCI_{95\%}$
Exploration mode → Enjoyment → Y_i	0.198	0.061	0.389	−0.075	−0.210	−0.007
Exploration mode → Satiation → Y_i	0.133	0.011	0.317	−0.039	−0.170	0.025
Exploration goal → Enjoyment → Y_i	0.255	0.088	0.466	−0.097	−0.267	−0.005
Exploration goal → Satiation → Y_i	0.156	0.039	0.359	−0.046	−0.178	0.032

			Willingness to continue (Y_1)			**Desire to change(Y_2)**		
	Condition	**Effect**	Effect	Boot $LLCI_{95\%}$	Boot $ULCI_{95\%}$	Effect	Boot $LLCI_{95\%}$	Boot $ULCI_{95\%}$
Conditional direct effects	Search-oriented	Exploration mode → Y_i	0.215	−0.176	0.623	−0.829	−1.303	−0.372
	Purchase-oriented	Exploration mode → Y_i	0.143	−0.214	0.519	−0.060	−0.455	0.332
Conditional indirect effects	Search-oriented	Exp.mode → Enjoyment → Y_i	0.198	0.061	0.389	−0.075	−0.210	−0.007
	Purchase-oriented	Exp.mode → Enjoyment → Y_i	0.189	0.029	0.401	−0.072	−0.227	−0.004
	Search-oriented	Exp.mode → Satiation → Y_i	0.133	0.011	0.317	−0.039	−0.170	0.025
	Purchase-oriented	Exp.mode → Satiation → Y_i	0.041	−0.057	0.159	−0.012	−0.093	0.015

individuals, with a mean age of 30.2 years, of whom 49.5% were women.

In the questionnaire, the variables from the previous experiments were adapted to a recall-based survey format. The degree of diversity during the shopping session (exploration mode) was measured using a formative scale composed of three indicators: the approximate number of stores visited, the variety of products sought ("I tried to look for a variety of products," Likert scale), and the perceived nature of the browsing experience ("How would you describe your browsing experience? Specific-diverse", semantic differential scale). The outer weights of the indicators were 0.412 (p = 0.007), 0.433 (p = 0.022), and 0.512 (p = 0.009), respectively. Unlike the categorical manipulation used in the laboratory, this index captures the overall diversity of the navigation session.

To measure goal exploration, participants rated their main objectives when starting the session on a five-point scale: purchase-oriented goal ("When you started browsing online, was your main goal to buy a garment?") or search-oriented goal ("When you started browsing online, was your main goal to look for trends or inspiration for future purchases?"). The correlation between search-oriented and purchase-oriented goals was negative (r = −0.435). Finally, stickiness was measured using two items reflecting the willingness to continue navigating ("If I had had more time, I would have continued browsing online clothing stores"; "I felt glued to the screen, finding it difficult to stop browsing stores"). Lastly, individuals' involvement in online clothing shopping was included as a control variable, using the same indicators as in the previous studies.

7.2. Results

In order to examine the effects of exploration mode (diversity) and exploration goals on stickiness, we used partial least squares structural equation modelling (PLS-SEM) with SmartPLS 4 (Table 6).

The results confirm that greater diversity during browsing exerts a significant positive effect on stickiness (β = 0.252, p = 0.002), once again supporting H1. As for exploration goals (H2), the findings reveal a divergence from the laboratory experiment results. When the browsing goal is search-oriented, stickiness increases significantly (β = 0.253, p = 0.002), whereas when the goal is purchase-oriented, its effect on stickiness is not significant. Therefore, H2 is not supported in the real-world setting. The effect of the control variable –involvement in online shopping– is also significant (β = 0.224, p = 0.000). In real-world settings, purchase-oriented exploration may lead users to exit online stores or to shorten their sessions once the transaction is completed, thereby reducing stickiness, whereas search-oriented exploration is more likely to extend browsing through a flow experience.

Regarding H3, interaction terms between diversity and exploration goals were introduced. The results show that a search-oriented goal positively moderates the relationship between diversity and stickiness (β = 0.150, p = 0.030), supporting H3a. Interestingly, a purchase-oriented goal also positively moderates this relationship (β = 0.202, p = 0.015) (H3b is rejected). This indicates a robust overall effect of diversity; expanding the range of stores and products contributes to greater stickiness, regardless of whether the individual intends to

Table 6
Results of PLS estimation.

Hypotheses	Relationships	β	Sig.
H1	Diversity (exploration mode) → Stickiness	0.252	0.002
H2	Search-oriented goal → Stickiness	0.253	0.002
	Purchase-oriented goal → Stickiness	0.060	0.223
H3a	Diversity × Search-oriented goal → Stickiness	0.150	0.030
H3b	Diversity × Purchase-oriented goal → Stickiness	0.202	0.015
Control	Involvement towards online shopping	0.224	0.000

purchase or simply browse.

7.3. Discussion

This study confirms that diversive exploration is a robust driver of stickiness among young adults. It also reveals boundary conditions related to exploration goals. While the artificial laboratory context suggested that purchase-oriented goals enhance stickiness, in real-world settings purchase-oriented users seek efficiency, i.e., faster transactions and lower stickiness, whereas search-oriented users tend to engage in longer browsing sessions.

8. General discussion

This study analyses how exploration mode and exploration goals influence online shopping stickiness, i.e., the desire to stay longer in the store/s subject are visiting during the current shopping session. The exploration mode describes how users navigate through the site, in a specific way, focused on a store or a product, or seeking diversity of stores or products. Meanwhile, the exploration goal differentiates between sessions aimed at information-seeking and those aimed at making a purchase.

Results from two experimental studies and a field study conducted for online fashion stores indicate that exploration behaviour significantly impacts user online shopping stickiness. These studies suggest that diversive exploration –across different products or stores– can enhance user stickiness, as users who find a wider range of options are less inclined to leave the current site/s, which therefore makes the shopping experience more engaging. This aligns with Demangeot and Broderick (2010), who found that diversive exploration fosters the intrinsic motivation to continue browsing. Moreover, when diverse exploration is characterized by product variety, the degree of stickiness is seen to be greater than when diversity is based on visiting different stores.

Furthermore, the reason why a user visits an e-commerce site –whether to make an immediate purchase or to gather information (Moe, 2003)– also affects stickiness. In an experimental setting, under time constraints, users with purchasing goals were more likely to stay engaged when they were shopping in a single store. Indeed, when the aim of the shopping session is to buy, there is little difference in stickiness between specific and diversive exploration, which suggests that the purchase goal alone determines online shopping stickiness and reduces the need to switch between stores. Shoppers with a purchasing intent may not require extensive product variety to stay engaged, which is likely due to the paradox of choice. According to Schwartz (2004), this paradox suggests that as users encounter more options, they find it increasingly difficult to make decisions and to feel satisfied with them.

However, in real-world settings, purchase-oriented users perceive lower stickiness than search-oriented users. This may be because individuals who enter online stores with a purchase goal tend to exit once the transaction is completed, thereby shortening the session and limiting potential stickiness. Another explanation is that –regardless of the time spent– having completed a purchase leads users to perceive greater efficiency and, consequently, a lower sense of stickiness.

Consistent with previous research (Fiore et al., 2005; Fiore and Kim, 2007; Liu et al., 2020), our findings also suggest that greater enjoyment leads to increased stickiness. The diversive exploratory behaviour of navigating different stores generates a sense of enjoyment amongst consumers during the search and purchase process, which leads to greater stickiness. This highlights the importance of designing enjoyable shopping experiences to foster user retention.

Another emotion that shopping may evoke is satiation. In this regard, the first study reveals that satiation mediates the relationship between product diversity and online shopping stickiness. In line with research into consumer satiation (O'Brien, 2021; Sevilla et al., 2018), satiation results from repeated exposure to the same stimuli –rather than varied stimuli– during the online purchase process. Findings show that product variety reduces boredom and fatigue during browsing, thereby increasing stickiness levels. Additionally, the second study demonstrates that satiation also mediates the relationship between store diversity and online shopping stickiness when the goal of store navigation is information seeking. When product variety is complemented by store variety, with an information-seeking purpose, satiation therefore decreases, resulting in higher levels of stickiness.

The impact of diversity on more enjoyment and less satiation suggests that online exploratory behaviours can generate psychological benefits for consumers. In this sense, several studies have shown that both shopping activity and online purchasing may be seen as a form of escapism, entertainment, or emotional regulation, thereby enhancing subjective well-being (Ekici et al., 2018; Nghia et al., 2020). Diversive exploration, in particular, has been identified as a browsing mode that offers a wider range of stimuli and that can foster curiosity, mental play, and a sense of discovery experience (Hoffman and Novak, 2009; Demangeot and Broderick, 2010), which are key elements in the hedonic shopping experience.

8.1. Theoretical contributions

This study contributes to the literature on online shopping stickiness (Olbrich and Holsing, 2011; Tangmanee, 2017) in several ways.

First, this research extends our understanding of users' exploratory behaviours when visiting online shops. Previous studies in the field have focused on user exploration within a single website (Mallapragada et al., 2016; Friedrich et al., 2019; Pang et al., 2024). However, actual consumer purchasing behaviour is not typically confined to a single store –either in offline shopping or online environments. Analysing exploration behaviour based solely on metrics from one e-commerce site fails to capture the broader browsing experience, as natural shopping behaviour involves moving from store to store and enjoying the experience. This narrow approach overlooks the fact that users frequently visit multiple sites and domains during a single session (Demangeot and Broderick, 2010). To address this gap, the present study is the first to examine users' whole browsing sessions, taking into account not only the products viewed on individual sites but also the number of websites visited by the user.

Secondly, through experiments conducted in real online stores, this study identifies how different exploration modes and goals influence users' likelihood of staying longer in the store/s they visit during a shopping session. Our findings show that more diversive exploration–across both products and stores–enhances users' online shopping stickiness, as well as the purpose for which a user visits an e-commerce site –whether to make an immediate purchase or to gather information. By linking the effects of exploration mode and goals to the degree of online shopping stickiness, this study both contributes to and extends the existing literature on consumer exploration and information-seeking behaviours. Prior research has examined how consumers perceive the search process either as a cost or as an experience (Maity and Arnold, 2013), how they rely on external sources of information (Tajdini, 2021), or how they adopt strategies to reduce uncertainty (Li et al., 2024). The literature suggests that different modes of exploration might confer differing advantages depending on consumers' levels of knowledge, their perceptions of risk, and their specific objectives during the browsing experience.

Thirdly, the study examines the dual pathway through which exploration can lead to stickiness. Specifically, it introduces the positive and negative emotions experienced during the online shopping process as mediating variables; namely, enjoyment and satiation. On the one hand, enjoyment during online browsing is enhanced by diversity of products and diversity of stores, while on the other, satiation is prevented by diversity of product together with diversity of stores. The strong influence of hedonic factors on online shopping stickiness is thus confirmed as is the impact of negative emotions, especially when users

are conducting a more informational visit to a website rather than a purchasing visit.

Finally, by positioning exploration not only as a driver of economic outcomes but also as a source of hedonic value, this study helps to expand the literature that portrays online shopping as being not purely transactional but often experiential, by offering moments of inspiration, recreation, and psychological gratification (Ekici et al., 2018; Nghia et al., 2020; Zulauf and Wagner, 2022). Nevertheless, while stickiness can be associated with positive outcomes for e-commerce platforms or with hedonic value for consumers, it is important to acknowledge that it is not always beneficial and that it may have a darker side. A high level of stickiness can result in a detrimental user experience when it triggers effects such as information overload or frustration caused by excessive choice (Huang, 2000; Schwartz, 2004). In fact, prolonged browsing without conversion may lead to abandonment and even a deterioration in the overall user experience. Users may become trapped in inefficient navigation or overwhelmed by stimuli, which leads to fatigue, and discourages purchase decisions. Therefore, stickiness does not necessarily guarantee an effective purchase or a satisfying experience, and may indeed reflect either a fulfilling exploratory journey or a state of stagnation in the decision-making process.

8.2. Managerial implications

The findings of this research reveal that online shopping stickiness is influenced by users' exploration modes and goals during navigation in the online store/s. Understanding these nuances allows e-commerce platforms to develop strategies that enhance user engagement during the visit to their sites and so build lasting customer relationships. Several managerial implications stand out:

First, diversity–of both stores and products–significantly increases stickiness. For product diversity, these insights can inform website design by not only expanding the range of products offered but also by providing cross-category recommendations that increase perceived variety. For instance, if a user is browsing hoodies, suggesting complementary items like jeans to complete an outfit could enhance engagement more effectively than suggesting additional hoodies.

As regards store diversity, while it may be impossible to control whether a user visits a competitor's site, it is feasible to structure a brand's own website to create a sense of variety without requiring users to switch domains; the greater the diversity, the less the desire to change. By developing distinct designs and sections for different categories, the website can offer varied experiences within the same platform. Additionally, these findings suggest that partnerships with brands offering complementary products can help meet users' needs for variety, and reduce the likelihood of them turning to competitors' sites for additional options. This could also encourage the adoption of multi-brand website stores, where the aggregation of diverse offerings in one platform becomes an attractive and competitive alternative. These multi-brand website stores could be similar to what works offline in commercial streets or shopping malls, where a wide range of stores and brands co-exist in one location, attracting more foot traffic and boosting consumer engagement.

Lastly, the significant impact of searching goals suggests that consumers in information-seeking mode tend to seek more variety than those focused on making a purchase. This implies that retailers should tailor navigation experiences to align with the consumer's purposes –particularly for individuals looking to gather information. Understanding a customer's stage in the journey is key to adjusting the level of variety offered, and thereby ensuring that it meets their specific needs at that point. It is important to note that within the same shopping session, buyers may shift from needing more stimuli and variety to seeking specific stimuli that facilitate their decision-making. In this regard, artificial intelligence could help personalize online stores based on users' exploration, search, and purchasing behaviour, so that stores align with users' interests.

In addition to the economic outcomes, our findings also point to non-economic benefits of exploration behaviours that are equally relevant for the success of e-commerce platforms. The opportunity to browse through varied options may not only serve a functional purpose but may also offer hedonic value, transforming shopping into a pleasant and engaging activity that can inspire, entertain, and emotionally engage users. From a managerial perspective, fostering enjoyable and low-pressure exploration environments can promote positive affective associations with the brand, which may in turn enhance long-term customer loyalty, even in the absence of immediate purchases.

8.3. Limitations and future research

This work is not without limitations. First, we label diversive behaviour as movement between different shops. Yet this could also be viewed as specific browsing if the shops visited are already preferred or are familiar, whereas truly diversive behaviour might entail exploring unfamiliar options. Additionally, in real contexts, individuals may shift from diversive to specific exploration within a single browsing session in order to reach an optimal level of stimulation (Demangeot and Broderick, 2010). Our study, however, maintains a consistent exploration mode throughout the experiment.

Second, this research is conducted entirely in a desktop e-commerce context. Since browsing behaviour and conversion funnels differ between desktop and mobile platforms (Goldstein and Hajaj, 2022), it would prove valuable to replicate the study in a mobile or m-commerce setting.

Third, in this study we focus exclusively on the fashion sector due to its high popularity in online shopping (Statista, 2024) and because purchases in this category are inherently exploratory and hedonic in nature. The aim was to select a context in which the psychological mechanisms under investigation –such as curiosity and enjoyment when browsing– would be more intensely activated, thereby enabling robust empirical evidence to be gathered. While it is true that fashion is one of the most frequently purchased sectors online (Wunderkind, 2025), it would nonetheless prove valuable to extend this research to other sectors and product types. Purchases in other sectors, such as consumer electronics or groceries, may trigger different cognitive and emotional processes during the online shopping experience. Assessing the stability of the observed effects and identifying potential patterns across sectors constitutes a promising direction for future research. Future research could also investigate whether the positive effect of product and shop diversity on stickiness also applies to brand and/or platform diversity within a single umbrella company. Insights from this could guide strategies to reduce site abandonment by enhancing users' perception of diversity on a given site.

Fourth, the studies focus on the behaviour of young people. Future research should replicate these experiments with more diverse samples to confirm the effects observed in this study and to explore potential differences across groups.

Finally, one important limitation of the present study concerns the artificial nature of the experimental environments. Participants performed browsing tasks on pre-assigned web pages and within a set timeframe, which may have led to behaviours that differ from those occurring in real shopping situations. Specifically, in the purchase-oriented exploration condition, the task was not to complete an actual transaction but to simulate purchase decisions, focusing on the deliberative phase where searching for and comparing alternatives fosters stickiness. We acknowledge that this design does not exactly mirror the dynamics of a real purchase, in which completing the transaction might suppress the desire to continue browsing –an aspect that our controlled environment does not account for, but which does emerge in the last study in a more real-world context. The experimental setting was deliberately designed to intensify browsing conditions in order to more clearly observe the effects of underlying psychological mechanisms, such as satiation, which tend to be self-regulated in natural contexts. According

to regulatory focus theory (Higgins, 1997), in real-life situations individuals often discontinue tasks before reaching certain thresholds, which may hinder the ability to empirically pinpoint certain effects. Nevertheless, these conditions reduce the ecological validity of the study. Future research should therefore aim to replicate this design in more naturalistic and diverse settings, incorporating less intrusive and more observational measures that allow the findings to be validated in real-world browsing situations.

CRediT authorship contribution statement

Carmen Antón: Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Carmen Camarero:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Itziar Oltra:** Writing – review & editing, Writing – original draft, Visualization. **Elias Vega:** Writing – review & editing, Writing – original draft, Visualization.

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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Data availability

Data will be made available on request.

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