

Omnichannel retailing: The role of situational involvement in facilitating consumer experiences

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ARTICLE INFO

Keywords:

Activity theory
Omnichannel
Omnichannel retailing
Personalized incentive
Situational involvement
Consumer experience

ABSTRACT

As omnichannel retailing is still in its infancy, a better understanding of the consumer journey within this context is needed. Utilizing the activity theory, we identified omnichannel platforms, platform synergies, and personalized incentives to influence consumers' situational involvement for positive consumer experiences in omnichannel retailing. The research used 256 valid responses to reveal that the omnichannel platform, platform synergy, and personalized incentives positively affect situational involvement, which directly affects consumer experiences, and that situational involvement mediates the effects of these factors on consumer experiences. Our findings also empirically confirmed that motivation (personalized incentives) is a precursor to the activity theory.

1. Introduction

Electronic commerce has transformed retailing over the last 15 years. However, the widely held presumption that online purchasing indicates the demise of brick-and-mortar shopping has been supplanted by a more nuanced vision of our shopping future—omnichannel retailing [1,2]. Omnichannel retailing seeks to create a broader and more seamless shopping experience by merging touchpoints and allowing consumers to use the channel that is best for them at their stage of the consumer journey through an information technology (IT) enabled omnichannel platform [3]. This emerging retail trend enables shrewd retailers to realize that online and offline shopping are not an either/or proposition. This is a chance to engage consumers through new methods by integrating physical channels with various cyber-physical digital channels [4].

The move toward advanced mobile technologies, social media, and omnichannel platform has created opportunities for both brick-and-mortar and online retailers to improve the holistic consumer shopping experience by adding more fun, unique incentives, and higher shopping efficacy [4]. For example, omnichannel retailing allows consumers to

experience an omnichannel environment within a physical store, such as exploring product information that can only be found through digital channels with the added benefit of touching, feeling, and seeing how the products function, sharing information with friends, or receiving social network comments from friends. After consumers leave the store, they can remain connected to new product information and sales events within the omnichannel platform. Hence, omnichannel retailing enables a new paradigm of commerce [5].

The new omnichannel platform facilitates unique methods to empower consumers with novel and emergent capabilities such as enabling showrooming, social connections, or synergies between different shopping activities while providing contextual awareness and incentives to create a superior shopping experience [6,7]. Consumers can interact with omnichannel platforms using integrated channels and various touchpoints depending on the unique shopping contextual situation offered within the platform, and consequently enjoy multiple omnichannel retailing benefits through a greatly enhanced consumer process, such as increased efficiency, monetary benefits, novelty, and enjoyment. By providing personalized collaborative activities with friends to earn rewards, offering individualized shopping services, push

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<https://doi.org/10.1016/j.im.2020.103390>

Received 7 March 2019; Received in revised form 14 October 2020; Accepted 24 October 2020

Available online 2 November 2020

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notifications, and rewards the omnichannel platform is capable of generating unique consumer shopping experience. Theoretically, omnichannel retailing remains in its infancy. As a new business model, omnichannel retailing has yet to be fully investigated, although the move from multichannel retailing to omnichannel retailing has evoked increasing interest [5,9,10]. Verhoef et al. [9] distinguished between multichannel, cross-channel, and omnichannel retailing from multiple dimensions and emphasized the development of a holistic consumer experience, greater data integration, and consumer interactions in omnichannel retailing. Carroll and Guzman [7] described the conceptual consumer experience model in omnichannel retailing and indicated that omnichannel retailing is a “single channel” with multiple touchpoints to deliver a completely seamless and consistent experience for consumers. Yrjölä et al. [11] considered a better understanding of consumers’ shopping motivations to be a critical driver of consumer behavior. Exploring this new retail environment from a consumer perspective enables a granular consideration of consumer involvement and consumer experience, along with their connectedness to the omnichannel environment, and the impact they have on value creation.

Verhoef et al. [9] proposed three research themes to consider during the shift from multichannel to omnichannel retailing, which indicates that the majority of existing contributions have a multichannel focus. Several studies have initiated preliminary investigations into two omnichannel retailing themes: the effect of channels on performance [12] and retail mix across channels [13]. However, the third theme, consumer behavior, particularly the new seamless consumer journey, has not been extensively studied. Verhoef et al. [9] suggested that research should adopt an omnichannel focus and aim specifically to model the choice behavior of consumers across multiple channels and touchpoints simultaneously. Similarly, additional research has suggested developing an omnichannel understanding across consumer journeys by evaluating the journeys themselves, what drives them [6], what facilitates the omnichannel consumer experience, what are the most desirable experiences in omnichannel retailing, and how interactive technologies shape consumer experiences [6,8,14,15]. Furthermore, according to Lemon and Verhoef [6], no research has clearly presented the nomological network of consumer involvement and the value it creates in an omnichannel retailing environment. The connectedness between involvement and experience or the unique characteristics of an omnichannel platform have not been fully explored, and to the best of our knowledge, no research has fully investigated the effects of the omnichannel platform on consumer experience. Based on these research gaps, three research questions are proposed: (1) What is the omnichannel nomological framework for consumer involvement within a consumer journey as advanced by Lemon and Verhoef [6]? (2) How do three factors, namely, omnichannel platform, platform synergy, and personalized incentive affect consumer involvement within an omnichannel consumer journey? (3) How does consumer involvement mediate the effects of these factors on consumer experiences?

Activity theory is salient in addressing these topics. The premise of activity theory is that a collective activity with a basic purpose shared by a community is undertaken by subjects motivated by a goal and mediated by the tools used to achieve that goal [16]. Within an omnichannel retailing context, the shopping activity is undertaken by a motivated consumer within a broader omnichannel environment. The theory suggests that an omnichannel retailing environment can empower consumers to create synergy or novel methods for them to continue their retailing journeys. The synergy between the omnichannel retailing environment and consumers facilitates purposeful consumer involvement, which leads to enhanced consumer experiences [5]. We believe that the availability of this type of interactive environment to consumers can lead to enhanced consumer interaction and stronger outcomes transformation.

This study made three key theoretical contributions. First, it extended our understanding of the nomological network of consumer experience for consumers’ involvement within a journey. Our second

contribution involved exploring the previously unconsidered mediating role of the object of activity on the relationship among a subject, tool, and outcome, as much consideration was placed on the mediating role of tools in current activity theory literature [16]. Third, our findings empirically confirmed Allen et al. [16]’s observation that motivation should be placed as a precursor to activity theory.

2. Literature review

2.1. Omnichannel retailing

Multichannel retailing moved from a disconnected and separate set of channels to cross-channel retailing, which offers a more connected approach to consumer retailing. Omnichannel retailing represents the next transformation of the consumer shopping experience. Channels are increasingly able to provide seamless transitions and deliver a more comprehensive experience across all channels. Omnichannel retailing enables merchants to identify, gather, and analyze vast amounts of information regarding consumers, products, interactions, physical surroundings, shopping context, and change in motions [18]. However, from a consumer perspective, a key feature of the omnichannel retail approach is the ability of consumers to use the channel best for them at their stage of the consumer journey to obtain relevant information that best fits their needs [6,19]. Consumers can select the channel, time, and method of retail interactions. Any retail technology used in-store should extend the consumer experience. Connected mobile consumers can access information and buy anything anywhere and at any time. This results in retailers removing barriers across channels by providing services such as “click and collect,” “order in-store, deliver home,” “order online, return to store,” “showrooms,” and other combinations of online and traditional retail activities [20]. Neslin et al. [21] summarized the consumer journey within an omnichannel setting excellently: A consumer may begin the purchasing experience based on a friend’s recommendation, online product research, or an offer by a company. The consumer can then go to a retail store to touch and feel the merchandise. Afterwards, the consumer can compare prices online and ultimately buy the product anytime using a tablet or other device. Later, the consumer can go online to learn about the features and characteristics of the product and how best to use it. Finally, the consumer can call the service center to report any unsatisfactory situations regarding the product or the buying process.

As highlighted by Pantano and Timmermans [22], the relationship between consumers and retailers is strengthened by consumer involvement, easily used and interactive interfaces, and entertaining devices that provide consumers and retailers with dynamically visualized information. Therefore, technology becomes smart by connecting retailers and clients with the mutual goal of achieving enhanced consumer dynamics and consumer experiences [23]. The empowering nature of omnichannel platforms allows for a unique consumer experience. In such a synergistic environment, each stakeholder is empowered with emergent capabilities to extend their living space, where people can develop strong connections and interactions through channels, devices, or other people [24]. Highly personalized incentives can be pushed to people, and simultaneous communications are activated by combining online and offline stores and services [5,25]. Within omnichannel environments, the synergies created using IT, channels, and touchpoints alongside data-driven marketing techniques offer unique opportunities for consumers to explore a new shopping environment and create meaningful and unique experiences. For instance, the simultaneous use of communication channels by consumers facilitates the emergence of new shopping behaviors, such as showrooming and webrooming. These emergent capabilities empower consumers in ways that multichannel and cross-channel retailing cannot [5]. Consumers can conduct shopping activities in an efficient and new manner, such as by receiving the most relevant information needed to complete tasks, efficiently compare brands and products either in-store or online, evaluate the outcomes of a

purchase decision, obtain real-time shopping support from both sellers and other consumers, and easily reach their shopping destination through door-to-door navigation [26,27].

Much of the omnichannel retailing literature addresses a range of areas regarding organizational approaches and how consumers respond to these approaches [28]. At the business level, studies have considered how technology can support omnichannel business strategies [29,30]. Regarding IT, Burford and Resmini [31] identified two critical areas for omnichannel design: cross-channel experiences and information coherence. Other research has considered consumers' attitude toward omnichannel retailing in terms of usage experience and adoption [8,14,32]. For example, Chen et al. [28] examined the barriers and cross-channel synergies in consumers' use of omnichannel services. Yrjölä [11] regarded understanding consumers' shopping motivations as a critical objective because they drive behavior. These motivations are broadly categorized as being either more utilitarian or more hedonic in nature [33,34]. Melerio et al. [19] explored consumer experiences from an omnichannel context and identified channel attributes and channel experiences as key facets of omnichannel retailing.

The current literature contains a wide range of perspectives when addressing the scope of omnichannel retailing and its impact. This can be rewarding and problematic. A deeper understanding of omnichannel retailing is important for researchers but the broad nature of what omnichannel retailing encompasses highlights its infancy in research contexts. For example, Mirsch [35] identified the need for omnichannel management because technological evolution and constant digitalization strongly influence consumers' behavior, market developments, and company–consumer interaction. Aubrey and Judge [36] discussed brand strategy and innovation and suggested that omnichannel strategies must be better able to adapt for brands to cope with consumer preferences and loyalty. Bhalla [37] differentiated multichannel and omnichannel retailing. Lazaris and Vrechopoulos [38] discussed digital integration in omnichannel environments. However, the experiential nature of omnichannel shopping remains relatively unexplored, particularly in relation to measuring omnichannel consumer experiences. However, omnichannel practitioners must identify, promote, and provide consumers with various experiential benefits to enhance their shopping experience [15].

2.2. Consumer experiences within omnichannel retailing

Because of omnichannel retailing, consumers have become more knowledgeable, demanding, collaborative, and interactive [7]. Omnichannel retail continues to grow, consumer experiences are now more important than ever, and digital technologies are key to the creation of consumer experiences [15]. The literature contains multiple definitions of consumer experiences [6]. Studies have focused on omnichannel consumer experiences in a piecemeal fashion that includes channel integration [8,14], touchpoint management [39], service quality [32], and information architecture [31].

Consumer experiences have been classified into varying dimensions from a multidimensional view, such as cognitive, affective, social, physical, and sensory dimensions [40,41]. Shi et al. [15] identified key dimensions of the omnichannel experience that focus on different aspects of customer perceptions, including connectivity, integration, consistency, flexibility, and personalization, and examined how these dimensions impact the omnichannel shopping intention. In this study, we focused on the major accepted definitions of consumer experience from a multidimensional perspective. For instance, Verhoef et al. [41] explicitly defined consumer experience in retailing as a multidimensional construct and specifically stated that consumer experience constructs are holistic in nature and involve consumers' cognitive, affective, emotional, social, and physical responses to retailers. Lemon and Verhoef [6] further refined consumer experience as a multidimensional construct that focuses on consumers' cognitive, emotional, behavioral, sensory, and social responses to a firm's offerings during the consumer's

entire purchase journey. They then moved onto explaining the importance of refining consumer experiences as a construct, which is relatively broad. Differentiating this from other consumer-focused constructs is useful. Mittal et al. [42] identified the need to better understand how consumer experience is related to more focused constructs within marketing, such as consumer satisfaction.

Consumer experience is created through a consumer journey, including three stages: prepurchase, purchase, and postpurchase [6]. Prepurchase stage covers all aspects of customer's interaction with the brand before a purchase transaction. Behaviors include need recognition, search, and consideration. The purchase stage encompasses all customer interaction with the brand and its environment during the purchase event itself. Behaviors include choice, ordering, and payment. The postpurchase stage covers customer interaction with the brand and its environment following the actual purchase. Behaviors include usage and consumption. Much current work in consumer experience examines the entire and holistic customer journey. However, when considering these three stages of the customer journey, it allows the examination of the consumption process to be more manageable [6]. This study focuses on understanding customer involvement behavior during the prepurchase and purchase stages in performing an omnichannel shopping activity. Based on Lemon and Verhoef [6], situational involvement is associated with the prepurchase and purchase stages, where consumers are actively interacting with the platform. For example, as the customer journey flows from prepurchase to purchase, in both stages, customers can interact with touch points, share information across numerous available channels resulting in consumer experiences.

Consumer experiences are related to the emerging construct of consumer involvement within online environments [6]. Consumer involvement refers to the consumers' information seeking behaviors such as consideration, search, and choice actions that motivate a consumer to make a purchase, or the importance a consumer places on a product or service. It usually occurs before the customer makes a purchase decision [43]. This approach has been extended, particularly as the digital and social media revolution have strengthened the importance of consumers' involvement because they are active coproducers or destroyers of value for firms [44,45]. Consumer involvement focuses on the extent to which consumers' reach out to and initiate contact with firms, whether attitudinally or behaviorally. As such, "reaching out" constitutes touch points along the consumer journey and results in cognitive, emotional, behavioral, sensory, and social responses by consumers. Recent studies have attempted to measure consumer involvement [46,47], and to examine how firms can benefit from this [48]. As multiple available channels and touch points are highly interactive and provide many opportunities for consumers to interact with firms, considering consumer involvement in the development of consumer experience is crucial. Thus, we view consumer involvement as an important consumer behavioral construct, which manifests while conducting a shopping activity and then leads to the realization of consumer experiences through interactional touch points during the prepurchase and purchase stages of the customer journey. Considering the separate stages of the consumer journey, allows the examination of a consumer shopping activity to be broken down into a more manageable framework of consumer experience [6]. To date, no research has clearly shown the nomological network of consumer experience, which is a critical topic for future research [6].

According to Chen et al. [50], in retailing, many researchers divide consumer values into two categories: utilitarian and hedonic [51,52]. They then further define these two values, with utilitarian value as the value a consumer receives from the functionality of a purchased product [52] and hedonic value as the value a consumer receives regarding subjective experiences of fun and playfulness [51,52]. An understanding of the two consumer values enables a fuller exploration of the consumer experience [52]. Furthermore, according to Chen et al. [50], hedonic and utilitarian values related to context should be considered during online purchases [53]. Other practitioners have also reported that in

omnichannel environments, people are interested in mobile apps that provide practical and entertaining services [54]. Therefore, by considering consumer interaction in omnichannel environments, this study focused on usability and hedonic experiences to capture the most salient features related to omnichannel consumer experiences, specifically cognitively and emotionally. Based on the aforementioned research gaps, this study focused on developing the nomological network of consumer experiences proposed by Lemon and Verhoef [6] to investigate the relationship between consumer involvement and consumer experiences within an omnichannel context.

2.3. Activity theory and construct identification

To identify a sound theoretical grounding and better understand the aforementioned new consumer phenomena, omnichannel technologies can be leveraged to facilitate consumer involvement and create unique consumer experiences. The activity theory presents several strong avenues for further exploration. The activity theory is a philosophical and cross-disciplinary framework used to study human practices as development processes, with both individual and social levels interlinked simultaneously [55,56]. Interest in the activity theory has grown within the Information Systems (IS) field [16,57] because it can provide insight into the relationship between IT and behavior. According to the activity theory, an activity is highlighted as a basic unit of analysis to understand the minimal meaningful context of individual actions [58]. An activity is undertaken by a subject (a person or collective) motivated by a purpose or with an underlying motivation to act upon an object (typically a person, collective, or thing) to achieve an outcome [16]. Singh [59] claimed that motivation may originate from an internal or external source and can be a combination of factors that lead people to achieve their goals.

Given the evolutionary development of the activity theory, Allen et al. [16] introduced motivation as a component of activity and argues that people need to use tools to achieve their objectives and outcomes in any activity. In this view, motivation is a component of activity theory in understanding people's motivations to conduct any activity to promote their goals. Understanding motivations helps provide ways of promoting and increasing the use of any activity [17]. The transformation of motivation into goals is salient in the omnichannel platform because consumers are aware of the potential of new retail environments, and this enhanced platform can empower, actively "know," and interact with consumers. This research has chosen to focus on the core activity model and the relationships between subject, tool, and the addition of motivation as a precursor. Approaching the activity theory from Allen et al. [16] perspective, i.e., at an individual level, rather than Engeström's third generation activity systems approach [57], we are able to focus on the journey that a consumer may take. Activity theory also considers other important factors, namely rules and norms, community and division of labor, yet from an individual consumer using an omnichannel platform's perspective, the applicability of these constructs appear to be less relevant. There appears to be less clearly defined rules, community, and roles for the consumer to follow with omnichannel retailing, particularly when considering the role that IT plays in creating superior consumer experiences.

When focusing on the activity theory and the relationship between subjects and objects, we must consider both the motivation of the subject and the subject-object relationship. Although several object interpretations have been presented [16,56,61], we focused on the narrow definition whereby the object is the target of an action. For consistency, we used the term "object of activity," as "object" and "object of activity" are used interchangeably [56]. The reciprocal relationship between the subject or actor and object of activity can be mediated by a "tool," which is simultaneously enabling and limiting. This empowers subjects during the transformation process with the historically collected experiences and skills "crystallized" to the tool but restricts interactions from the perspective of that particular tool or instrument [56].

While most emphasis has been placed on the mediating role of tool in the subject-object relationship, from our research context, we have been particularly interested in the outcome experiences that are afforded through an interaction with the object of activity. In this research context, the mediating role that an object could play in the relationships between subject and outcome, as well as tools and outcome, offered a novel perspective that was also in keeping with the observed phenomena. The activity theory is a good fit when considering an omnichannel environment and the transformation process a consumer undergoes when going through a shopping activity, from the initial motivation to make a purchase to the end goal of achieving a desired outcome. Outcome is the product or consequence of an activity through which the subject acts upon the object. In omnichannel retailing, a shopping activity is undertaken by a consumer, with underlying actions acting on consumer involvement through different touch points to create superior consumer experiences. Thus, consumer experiences can be viewed as the eventual outcome of a shopping activity in this research.

2.3.1. Personalized incentive

According to Allen et al. [16], motivation is a factor influencing individuals' goals and driving their activity. An activity is undertaken by a subject motivated by a purpose or with an underlying motivation to act upon an object to achieve an outcome. By applying the activity theory to omnichannel retailing, we identified personalized incentives to represent the motivation that targets the consumers' drive for an activity based on the motivation-subject relationship. Personalization, which is the ability to provide content and services that are tailored to individuals based on the knowledge of their preferences and behavior [62], is a crucial concept in IS research. Personalization is widely used in omnichannel retailing; because modern consumers increasingly embrace personalized services [25]. For example, by using detailed individual consumer records and corresponding webpage browsing and consumption analysis, Amazon and Alibaba offer consumers specific and tailored promotions to induce purchases when consumers shop online [25].

We defined personalized incentives as the perceived amount of individualized consumer information, services, rewards, and incentives given when using omnichannel platforms. For instance, omnichannel platforms provide consumers with purchase recommendations, shopping guides, location-based services (e.g., indoor navigation, reference cues, and route maps), real-time personalized rewards (e.g., virtual coupons, red envelopes, and membership points), opportunities to collaborate with friends to earn rewards, and various shopping activities based on their unique preferences, needs, and shopping context.

2.3.2. Omnichannel platform

By applying Allen et al. [16] development of activity theory to omnichannel retailing, we identified an omnichannel platform, the "cyber-physical environment," to represent the tool that includes channels, touchpoints, and IT platforms and allows consumers to conduct their desired tasks with a uniform shopping experience. Because the term "cyber-physical environment" is too broad for our research context and does not capture the unique characteristics of omnichannel retailing, we therefore adopt from Harris [3] and Shi et al. [15] in defining omnichannel platforms as IT-enabled environments that offer integrated channels (in-store, online, mobile, in a call center, or social), touchpoints, and information to facilitate seamless shopping activities. Such a platform can empower consumers with emergent capabilities to understand the new attributes, meanings, and relationships of an omnichannel shopping context and create novel ways of influencing shopping behavior [63]. As consumers interact with various touchpoints along their journey, they can tailor services that best fit their needs by beginning a journey on one device and completing it on another [9].

In the relationship between consumers and omnichannel platforms, consumers are empowered to make purchase decisions through new methods. Omnichannel platforms are crucial for enabling consumers to

complete their goals. Accordingly, in this research, the shopping scenario created by integrating tools and communities within the broader omnichannel platform consists of a sequence of actions that lead to outcome [56]. The object of the activity was a unique shopping situation on an omnichannel platform. Consumers could interact with the omnichannel platform using their preferred channel that depends on the shopping contextual situation offered within the platform.

2.3.3. Platform synergy

Furthermore, we identified platform synergy based on the reciprocal relationship between the subject and the tool. As previously mentioned, the “tool” empowers the subject under transformation with the historically collected experience and skills “crystallized” to it [56]. Drawing on the synergistic perspective of Nevo and Wade’s [63] unified model, we used the concept of synergy, which means “to work together,” to label the reciprocal relationships between subjects and their tools that result in positive transformations and outcomes. The synergistic relationship between a tool and subject is evident when the tool provides the subject with new or modified capabilities that make the subject more likely to complete tasks or achieve goals.

An omnichannel platform can provide consumers with integrated channels and IT-enabled functionalities that empower them to efficiently facilitate shopping activities and easily gain access to other consumers’ or sellers’ resources to exchange information or develop affective interactions with others. These extended capabilities provide better opportunities for consumers to receive incentives and search for information to reduce uncertainty and risk when gratifying their individual needs in omnichannel environments. In this research, we defined platform synergy as the integrated relationship between consumers and the omnichannel platform, which provides positive emergent capabilities. These capabilities are associated with the interactions between consumers and the omnichannel platform.

2.3.4. Situational involvement

Consumer involvement is an important variable found to explain and predict consumer behavior. As described by Lemon and Verhoef [6], situational involvement occurs during the prepurchase and purchases stages and furthermore, influences a consumers’ decision-making [64]. Situational involvement is a behavioral variable that reflects a consumers’ participation in and connection with a specific situation or environment [65,66]. The core concept behind situational involvement is personal relevance. In a shopping scenario, Hong [67] indicated that situational involvement encompasses a chain of consumer actions, such as information searching, need recognition, and sharing information across friendship groups. These actions are connected to specific prepurchase and purchase situations, as a result of these chains of interactions, consumers are able to enjoy a more personalized shopping experience. In this study, situational involvement is defined as a chain of consumer actions directed toward specific prepurchase and purchase scenarios on the omnichannel platform.

By applying the activity theory to omnichannel retailing, we can identify situational involvement through the relationships interconnected between subject, tool, and object. An activity is undertaken by a subject with an underlying motivation to act on an object to achieve an outcome [16]. The platform is able to enhance the object of activity through greater IT integration throughout the consumer journey, and the subject is able to interact with the object of activity on a far more individualized basis. Consumers interact with omnichannel platform using integrated channels and various touchpoints depending on the unique shopping contextual situation offered within the platform. This enhanced object of activity leads to a more purposeful and enjoyable consumer experience.

2.3.5. Usability and hedonic experiences

According to the activity theory, outcomes are the consequence of transformation processes between the subject and object of activity. By

applying the activity theory to omnichannel retail, we identified usability and hedonic experiences as representing outcomes. In omnichannel retail, consumers seek to create a holistic shopping experience by using their preferred channels and devices to accomplish shopping activities throughout the consumer journey [3]. In this journey, a consumer may simultaneously appreciate hedonic and usability experiences [68,69]. Studies have revealed the relevance of usability and hedonic experiences for value cocreation in online environments [70,71]. From an omnichannel retailing perspective, consumers may appreciate the usability experience offered in omnichannel environments because they are better able to simplify the purchase process, promote intuitive usage, and provide individual support, such as effectively assisting shopping activity with personalized product recommendations, indoor navigation, real-time communication with merchants, and convenient payment methods. Consumers can also enjoy the pleasure, fun, relaxation, and entertainment nurtured by the omnichannel platform.

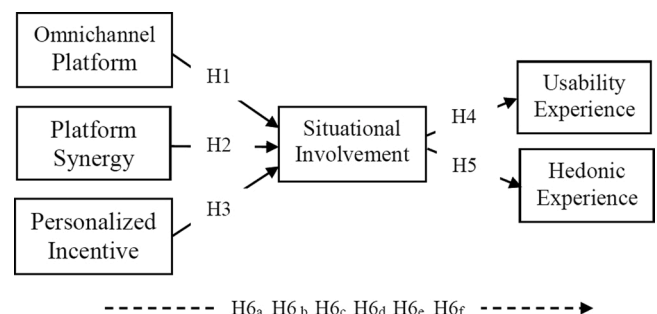
In this study, usability experience reflected the perceived ability of the omnichannel platform to complete shopping activities [71,72]. This dimension reflects the sense of fulfilling personal requirements, enhancing consumer experience, providing individualized navigation for shopping activities, and providing personalized consumer needs gained from engaging in the omnichannel platform. Hedonic experiences are defined as the perceived playfulness, enjoyment, and relief derived from conducting shopping activities on omnichannel platforms [71,72]. This dimension reflects the sense of playfulness, sense of time passing quickly, relaxed emotions from engaging in omnichannel platforms, and the feeling of being uplifted when challenging consumer tasks are completed with the assistance of omnichannel platforms.

3. Hypotheses and research model development

We drew on the activity theory by Allen et al. [16] to develop an explanatory model and corresponding set of hypotheses to explain the relationships between the identified dimensions and highlight the aforementioned research gaps, as displayed in Fig. 1. The model proposes that omnichannel platforms, platform synergies, and personalized incentives influence consumers’ usability and hedonic experiences from situational involvement in the omnichannel retailing context. In particular, situational involvement is modeled as a mediator of the effects of omnichannel platforms, platform synergies, and personalized incentives on consumers’ usability and hedonic experiences.

3.1. The effect of omnichannel platform and platform synergy on situational involvement

Given the evolution of the activity theory, Khayyat [17] integrated prior research and suggested that people need to use tools to achieve their objectives and outcomes in any activity. In omnichannel retailing, the omnichannel platform offers integrated channels, touchpoints, and various informational, social, and affordant cues related to shopping activities to facilitate consumer activities [6,15]. These help consumers effectively understand the meanings and functions of available activities



----- H6a, H6 b, H6c, H6d, H6e, H6f ----->

Fig. 1. Research model.

(e.g., products, merchants, other consumers, and the overall environment) on the platform particular to a time and place of observation [66], the relationships they can develop, and all possible actions they can perform in such a context. Omnichannel platforms allow consumers to embed themselves within the services or activities offered, thereby forming a large network of related subjects. In such an environment, the omnichannel platform provides users with greater convenience in connecting to and interacting with various channels to identify themselves, share information with others, query information, monitor their environment, and make payments and transactions [73]. Such an environment actively knows the consumers; accordingly, highly relevant information can be pushed to people during shopping activities. Therefore, a consumer can understand novel attributes and utility, understand the innovative services provided in omnichannel retailing, and eventually engage with the touchpoints provided by the omnichannel platform while conducting shopping activities. Thus, the omnichannel platform is likely to facilitate consumers' situational involvement. Therefore, the following hypothesis was proposed:

H1: Consumers' perceptions of omnichannel platforms are positively associated with their situational involvement in omnichannel retailing.

Platform synergy is the integrated relationship between consumers and the omnichannel platform, such as positive emergent capabilities [63]. From an omnichannel retailing perspective, such a synergistic relationship between consumers and the omnichannel platform generates positive emergent capabilities to achieve consumer goals more effectively and easily in three dimensions: information, social connection, and entertainment [74]. For example, a shopping activity can be efficiently conducted and facilitated by personalized recommendations, indoor navigation, real-time communication with merchants through instant messaging, and cooperation with other consumers (e.g., group buying) in novel and interesting ways.

Emergent capabilities empower consumers to access a wide range of channels available on the omnichannel platform, such as personalized coupons and highly relevant information (e.g., a product, service, or recommended shopping route). Capabilities enable consumers to efficiently judge differences among brands, consider the best purchasing choices, and evaluate the outcomes of such choices [9]. Therefore, platform synergy is likely to facilitate consumers' situational involvement. Therefore, the following hypothesis was proposed:

H2: Consumers' perceptions of platform synergy are positively associated with their situational involvement in omnichannel retailing.

3.2. The effect of personalized incentives on situational involvement

According to activity theory, motivation is a factor in influencing an individual's goals or aims [16,17,60]. Motivation may come from an internal or external source and can be a combination of factors that lead people to achieve their goals [59]. In an omnichannel retailing context, with increased accessibility to highly relevant information, a consumer may care greatly about which brand to buy when selecting from many brands for products or services available on the omnichannel platform. Consumers judge differences among various brands for products or services and consider whether they are making the right choice [6,9]. When making product or service selections, consumers are often concerned with matching their consumer choices with previous expectations. Personalized incentives can evoke consumers' feelings of a heightened level of personal relevance, interest, and arousal when shopping and can exert strong effects on consumer situational involvement toward a product, service, and overall shopping situation [15,19]. Thus, personalized incentives are motivators that lead consumers to act out shopping activities using the touchpoints offered on the omnichannel platform. Therefore, the following hypothesis was proposed:

H3: Consumers' perceptions of personalized incentives are positively associated with their situational involvement in omnichannel retailing.

3.3. The effect of situational involvement on consumer experiences

According to the activity theory, activities are realized as individual and cooperative actions. Chains and networks of such actions are related to each other in having the same overall object and motive. These chains of actions can be seen through the transition from interactions with the object of the activity to the creation of outcomes [56]. In omnichannel retailing, the consumer experience (i.e., hedonic and usability experiences) is the eventual outcome of a shopping activity and carried out by sets of actions, such as information searching, need recognition, consideration, information searching, and choice in prepurchase and purchase situations. Situational involvement reflects a consumers' participation in a shopping activity making conscious actions within a specific shopping situation. Research has suggested that situational involvement can influence consumers' responses [64]. Situational responses can be purchase decision-making or other outcomes without a purchase aim, such as product searching and sharing through word of mouth [5,75], perceived low risk [67], or hedonic experiences [19,24]. A consumer may appreciate highly relevant information regarding products, indulge in the shopping process, and engage in shopping activities as he or she becomes increasingly aware of the wide range of shopping scenarios on offer. The consumer can thus afford more opportunities to engage with touchpoints to enable greater facilitation of individual consumer goals [49]. Hence, a consumer who participates in a shopping activity performs conscious actions, this chain of consumer actions directed toward specific prepurchase and purchase scenarios on the omnichannel platform, consumers are able to enjoy better tailored and entertaining shopping experiences [5,28]. Therefore, we proposed the following hypotheses:

H4: Situational involvement is positively associated with consumers' usability experiences in omnichannel retailing

H5: Situational involvement is positively associated with consumers' hedonic experiences in omnichannel retailing

3.4. The role of Situational involvement as a mediator

As hypothesized in the previous sections, omnichannel platforms, personalized incentives, and platform synergies have positive effects on situational involvement. Situational involvement, in turn, affects hedonic and usability experiences. However, how situational involvement mediates the effects of these drivers of consumer involvement on hedonic and usability experiences remains unclear. The activity theory posits that subjects are motivated by a purpose to act on an object to achieve an outcome [76]. During this interaction, a transformation process leads to a desired outcome that is facilitated through the tools used by subjects [16].

A shopping activity is undertaken by a subject with an underlying motivation to act on an object to achieve an outcome [16]. The platform is able to enhance the object of activity through greater IT integration throughout the omnichannel platform, and the subject is able to interact with the object of activity on a far more individualized basis [77]. The synergistic omnichannel platform is used to connect consumers through integrated channels and create new consumer experiences by providing convenience and efficiency throughout the consumer journey. Consumers are able to interact with omnichannel platforms using integrated channels and various touchpoints depending on the unique shopping contextual situation offered within the platform, with each touchpoint representing a potential instance of situational involvement on a far more individualized basis throughout the consumer journey. In this sense, if the omnichannel platform provides the aforementioned synergistic functionalities for consumers to explore a new shopping environment with relevant offers and products, it can further facilitate consumer involvement and enable the consumer to create enjoyable and unique consumer experiences [6,24]. Thus, we formed the following hypotheses.

H6_a: Situational involvement mediates the relationship between

omnichannel platforms and consumers' usability experiences.

H6_b: Situational involvement mediates the relationship between omnichannel platforms and consumers' hedonic experiences.

Situational involvement is a chain of consumer actions directed toward specific prepurchase and purchase scenarios on the omnichannel platform. It reflects consumers' participation in and connection with a specific situation or environment. Platform synergy provides consumers with the capabilities needed to empower user participation in omnichannel shopping and increases efficiency, these capabilities can facilitate consumers ease in information searching for products or services, accessing sellers' gamified promotional events, reducing the perceived risks or doubts regarding products or services, and easily purchasing products or services on the omnichannel platform [66]. In this sense, platform synergy can create a synergistic effect on consumers' capabilities to explore a new omnichannel environment with relevant offers and products and facilitate situational involvement with different touchpoints [78], so as to lead to enhanced consumer experiences [5,24]. Thus, we formed the following hypotheses.

H6_c: Situational involvement mediates the relationship between platform synergy and consumers' usability experiences.

H6_d: Situational involvement mediates the relationship between platform synergy and consumers' hedonic experiences.

Similarly, omnichannel platforms can provide personalized information or incentives to consumers that is highly relevant to their processing goals and eventual outcomes. For instance, omnichannel platform provides the opportunity to personalize collaborative activities with their friends to earn rewards, provides individualized shopping services or rewards (e.g., virtual coupons, red envelopes, and red points), or offers individualized push notifications. Relevant content is useful for users to participate in and connect with a specific situation or environment in purchase decisions because it assists users in developing their preferences and reduces search costs more efficiently [25]. For instance, consumers can explore novel recommendations (products, locations, and services) and feel excitement when reviewing and processing personalized incentives. These personalized incentives can attract consumers attention to participate in omnichannel shopping, connect with a specific situation or environment, and facilitate consumers to consider their needs and values to determine the relevance of a product, driving consumers in information searching for individualized shopping services or rewards, accessing sellers' gamified promotional events with their friends to earn rewards, or individualized shopping services or rewards for them, and facilitate their involvement in a shopping activity [25,77]. Consumers can thus enjoy omnichannel retailing benefits through greatly enhanced consumer experiences, such as increased efficiency, monetary benefits, novelty, and enjoyment to create better consumer usability and hedonic experiences [5,7,8,25]. Therefore, personalized incentives are likely to facilitate situational involvement in strengthening consumers' usability and hedonic experiences. The following hypotheses are proposed.

H6_e: Situational involvement mediates the relationship between personalized incentives and consumers' usability experiences.

H6_f: Situational involvement mediates the relationship between personalized incentives and consumers' hedonic experiences.

4. Research design

4.1. Research instrument development

The first stage of this study was to construct a conceptual framework and develop measures. Following MacKenzie et al. [79], we began the scale development process by surveying the extant literature for validated scales that could be used in our study. Although we did not find complete scales that were suitable for this study, we identified several items and scale fragments. We included these in the initial pool of items. Because insufficient coverage of the construct domain was a problem, some new items were self-developed based on definitions provided by

the literature. The majority of the scale items were adopted from prior work but were modified slightly for the omnichannel retailing environment. For instance, the platform synergy items were adapted from Nevo and Wade [63]. The measures for situational involvement were derived from Huang [66]. The measures for usability and hedonic experiences were modified from Nambisan [70]. The measures for the omnichannel platform were modified from Mosquera et al. [5], and the measures for personalized incentives were modified from Wu et al. [80].

To ensure instrument content validity, 13 panelists (including professors and doctoral students from information system departments and consumers who participated in omnichannel retailing) were interviewed, and a pilot test of the questionnaire was conducted. This step aimed to ensure content validity to demonstrate the completeness and appropriateness of the research instrument [81]. This method of calculating the content validity ratios (CVRs) was developed by Lawshe [82] and is described by the formula $CVR = (ne - N/2)/(N/2)$, where CVR is the CVR; ne is the number of panelists, which indicates essential knowledge of a specific question; and N is the total number of panelists. The CVR of each scale item was calculated to quantify the degree of consensus of the 13 panelists, who judged the instrument's content validity. Each expert was asked to judge whether the 26 questions in the initial instrument list were essential for measuring the constructs included in our conceptual framework. According to Lawshe's criteria for CVR [82], the minimum CVR value of 0.56 must be met for statistical significance ($p < 0.05$). The feedback from the pilot respondents resulted in minor modifications to the wording of the 20 survey items and the model endorsement, instrument completeness, and item association with dimensions.

The final questionnaire consisted of three parts. The first part, a motivation section, stated the purpose of this study and relevant definitions including an explanation of what can be done on the omnichannel platform, its functionalities, and the shopping activities offered to consumers. In the second section, respondents were asked to answer questions, provide demographic information (e.g., sex, age, Internet experience, monthly disposable income, frequency of online shopping over the past 3 months, and average amount of money spent on online shopping). The third section contained the items that measured the constructs of the research model. The participants were asked to answer questions based on their thoughts regarding their overall omnichannel experience. Table 1 provides the final list of questionnaire items. All items were measured using a 5-point Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree).

4.2. Data collection

We surveyed omnichannel retailing consumers from a Yintai mall in China because they operate the largest physical chain of malls in China. Yintai manages more than 80 shopping centers in 40 cities across China. Support devices, such as sensors, beacons, position-tracking systems, and ubiquitous networks are fundamental to the shopping experience in Yintai malls and provide individual users with a smart shopping environment. Thus, it is representative of omnichannel retailing.

The proposed research model was tested with data collected from the Yintai mall using a web survey (<https://www.wjx.cn/>). We chose WeChat because it is the most influential social networking app in China and had over 1.16 billion monthly active users from a wide range of demographic backgrounds in 2019 [83]. Hence, WeChat is the most useful online survey channel for gathering self-reported questionnaire data.

The empirical data were collected from March 1 to June 30, 2016. Participants with omnichannel shopping experiences at the Yintai mall were cordially invited to support this survey. The first page of the questionnaire explained the purpose of this study and ensured confidentiality. When the survey concluded, 267 questionnaires were collected. An attention check question (i.e., "I have not participated in omnichannel shopping activities") was included in the survey

Table 1
Descriptions and Factor Loadings of Scale Items.

Construct	Instrument Item	Mean	S.D.	Factor Loading
Omnichannel Platform	OCP1: The platform extends my life space, and part of my space disappears when I disconnect from the environment.	4.02	0.629	0.702
	OCP2: The platform creates a novel market space for me.	4.06	0.666	0.783
	OCP3: The platform knows me and pushes relevant information to me.	3.94	0.700	0.730
	OCP4: I involve with the platform while performing shopping activities.	3.87	0.740	0.714
Platform Synergy	PS1: The omnichannel platform extends the consumers' informational, entertainment, and social capabilities.	3.81	0.735	0.796
	PS2: The omnichannel platform facilitates the efficiency of shopping activities (e.g. information, social connection, and entertainment actions).	3.89	0.717	0.834
	PS3: The omnichannel platform creates synergies between different shopping activities.	3.76	0.754	0.707
Personalized Incentive	PI1: Omnichannel platform provides the opportunity to personalize collaborative activities with my friends to earn rewards.	3.88	0.751	0.738
	PI2: Omnichannel platform provides individualized shopping services.	3.86	0.715	0.775
	PI3: Omnichannel platform offers individualized push notifications.	3.86	0.722	0.741
	PI4: Omnichannel platform provides individualized rewards (e.g., virtual coupons, red envelopes, red points).	4.03	0.688	0.730
Situational Involvement	SI1: When selecting products or services available on the omnichannel platform, I pay close attention to what is available to me.	3.85	0.678	0.742
	SI2: I am able to judge the differences between products or services available on the omnichannel platform.	3.80	0.755	0.710
	SI3: The omnichannel platform enables me to make the best choice of product or service.	3.78	0.761	0.701
Hedonic Experience	HE1: I gain a sense of happiness when engaging with the omnichannel platform.	3.68	0.713	0.845
	HE2: I enjoy the pleasant and relaxed emotions gained from engaging with the omnichannel platform.	3.69	0.743	0.831
	HE3: I feel up-lifted when the omnichannel platform helps me to complete challenging tasks.	3.68	0.739	0.800
Usability Experience	UE1: When engaging in consumer activities the omnichannel platform fulfills my personal requirements.	3.80	0.712	0.782
	UE2: My consumer experience is enhanced by the omnichannel platform.	3.95	0.687	0.722
	UE3: The omnichannel platform provides me with clear individualized navigation for consumer activities.	3.72	0.744	0.751
	UE4: My personalized consumer needs are facilitated by the omnichannel platform.	4.07	0.641	0.736

questionnaire to examine if the participants participated in previous omnichannel shopping activities or paid attention to the survey questions to ensure the appropriateness of the subject and data quality. After a strict screening and examination procedure, 11 participants did not pass the attention check question or gave incomplete answers and were excluded. This left us with 256 valid questionnaires (valid return rate = 95.88 %) for further data analysis. The demographic profile of the respondents is presented in Table 2.

To evaluate the presence of nonresponse bias, the respondents were divided into two halves based on the date of return. Then, we compared questionnaires turned in by early respondents (i.e., first 2-month period, $N = 142$) and those turned in later (i.e., last 2-month period, $N = 114$) with several individual demographic variables, such as age, Internet experience, and monthly disposable income. A series of chi-square tests did not detect significant differences between the two groups, which suggested that nonresponse bias was not a serious concern [84].

4.3. Data analysis methods

Structural equation modeling (SEM) techniques were suggested as a rigorous method of examining instrument reliability and validity and the significance of the relationships between constructs to provide a set of indices to evaluate the model fit [85]. Compared with conventional regression analysis, which ignores the interrelationships between latent constructs measured using multiple measurement items [86,87], SEM is best suited to data analysis in confirmatory research to analyze causal relationships among latent constructs [88]. This study used covariance-based SEM because this technique is conducted in AMOS to test the measurement model and structural model. This technique is appropriate given our research model because it permits the

Table 2
The Profile of the Respondents ($N = 256$).

Variable	Classification	Frequency	Percent
Gender	Male	87	33.98%
	Female	169	66.02%
Age	Less than 18	1	0.39%
	19–23	54	21.09%
	24–30	96	37.50%
	31–40	81	31.64%
	41–50	21	8.20%
	Above 51	3	1.17%
Internet experience	Less than 1 year	10	3.91%
	1–less than 3 years	28	10.94%
	3–less than 5 years	64	25.00%
	5–less than 7 years	43	16.80%
	Above 7 years	111	43.36%
Monthly disposable income	Less than CNY500	9	3.52%
	CNY501–1,000	12	4.69%
	CNY1,001–1,500	19	7.42%
	CNY1,501–2,000	26	10.16%
	CNY2,001–3,000	38	14.84%
	CNY3,001–4,000	84	32.81%
	CNY4,001–5,000	40	15.63%
	CNY5,001–8,000	18	7.03%
	CNY8,001–15,000	6	2.34%
Above CNY15,001	4	1.56%	
Frequency of online shopping over past three months	Never	6	2.34%
	Around 1–5 times	71	27.73%
	Around 5–10 times	63	24.61%
	Around 11–15 times	40	15.63%
	Around 16–20 times	17	6.64%
Average amount of money spent on an Internet shopping	Above 20 times	59	23.05%
	Less than CNY100	26	10.16%
	CNY101–500	162	63.28%
	CNY501–1,000	48	18.75%
	CNY1,001–5,000	15	5.86%
	CNY5,001–10,000	2	0.78%
	CNY1,000–15,000	2	0.78%
	Above CNY15,001	1	0.39%

construction of latent constructs from observed indicator variables, the simultaneous evaluation of multiple path relationships, and assessments of convergent and discriminant validity, and the composite reliability of construct measurements [89].

Collected data in this study were analyzed using AMOS v25. The model fit was evaluated using a two-stage approach recommended by Hair et al. [89]. The first stage entails assessing the measurement model for goodness of fit and the reliability and validity of the constructs through confirmatory factor analysis (CFA). This step was used to assess the reliability and validity of the measurement model and test whether the empirical data conformed to the presumed model. The second stage entailed testing the hypothesis in our model. Bootstrapping was used to test the statistical significance of the parameter estimates for path coefficients in the structural model.

4.4. Common method bias

We adopted a single-informant and self-reported approach to collect survey data. The potential for common method biases thus needed to be addressed. We constructed two statistical analyses to assess the severity of the common method bias. First, we employed a Harman one-factor test to examine whether a significant amount of common bias occurred in the data [90]. All construct items in our model were cast into principal component factor analysis. Results from this test revealed four factors with eigenvalues greater than 1.0 that accounted for 61.35 % of the total variance presented. The most covariance explained by the first factor was 40.52 %. This indicated that common method biases were not a likely contaminant of the results.

Second, we incorporated a common method factor, the indicators of which included all construct indicators in the measurement model, to evaluate the variance explained by substantive factors and the method factor [90,91]. The results revealed that the substantive constructs explained 68.72 % of the variance across the measures, whereas the method factor explained only 0.76 %. The ratio of substantive variance to method variance was approximately 90.39:1. The results indicated the absence of substantial common method bias in the data. Consequently, we concluded that common method bias was nonsignificant in this research.

5. Results

5.1. Measurement model

CFA was conducted to assess the adequacy of the measurement model. We used the following goodness-of-fit indices: the ratio of chi-square (X^2) to degrees of freedom (df), adjusted goodness-of-fit index (AGFI), normalized fit index, comparative fit index (CFI), and root mean square error of approximation (RMSEA) to assess the model fit. As shown in Table 3, the indicted fit exceeded the respective common acceptance levels suggested in previous research [89,92,93], which indicated that the measurement model exhibited a fairly good fit with the data collected ($\chi^2/df = 1.84$, AGFI = 0.858, NFI = 0.937, CFI = 0.948, and RMSEA = 0.057).

Reliability was assessed by examining the Cronbach’s α coefficient and composite reliability [94,95], and convergent validity was assessed

Table 3
Summary of Goodness of Fit Statistics for CFA and SEM.

Model	X^2/df	AGFI	NFI	CFI	RMSEA
Measurement Model	1.840	0.858	0.937	0.948	0.057
Structural Model	1.899	0.854	0.933	0.943	0.059
Recommended Value	< 3 ^{a,b}	> 0.8 ^b	> 0.9 ^{b,c}	> 0.9 ^{a,c}	< 0.08 ^{a,b,c}

Note: AGFI, adjusted goodness of fit index; NFI, normalized fit index; CFI, comparative fit index; RMSEA, root mean square error of approximation.

^aKline (2010), ^b Hair et al. (2010), ^c Hu & Bentler (1999).

by examining factor loading and average variance explained (AVE) coefficients [87,89]. Discriminant validity was evaluated using the square root of the AVE criteria and the item loads on their associated constructs compared with the item loads on other constructs [87,89]. Table 4 presents the composite reliability, Cronbach’s α coefficient reliability, AVE, square root of the AVE, and the correlations between the constructs. Regarding reliability, the Cronbach’s α coefficient and composite reliability of each construct were all over the standard thresholds of 0.7, which signified satisfactory reliability. Thus, all construct measurements had adequate reliability. All measurement items were loaded significantly on their respective constructs, and their factor loadings were over 0.70, which suggested that they were indicators loaded strongly on their corresponding constructs [89], as presented in Table 1. The result exhibited an acceptable quality of convergent validity. In addition, the convergent validity and discriminant validity of the constructs were further examined using AVE coefficients. As shown in Table 4, the estimated AVE of all constructs exceeded the common thresholds of 0.5, and the square roots of AVE were higher than their correlations with other constructs. Thus, the results indicated that the convergent and discriminant validity of all constructs in the measurement model could be assured [89,96]. In summary, assessing the measurement model involved exploratory and confirmatory techniques and thus provided sound evidence of the reliability and convergent and discriminant validity of all construct measurements. Therefore, evaluating the structural model was deemed appropriate.

5.2. Structural model

5.2.1. Hypotheses testing

The following is the assessment of the measurement model. Our research model was examined, and the relationships among the constructs were tested using AMOS. The same set of fit indices was used to examine the structural model. The results revealed that all fit index values were in the acceptable range, which indicated a good fit of the structural model ($\chi^2/df = 1.899$, AGFI = 0.854, NFI = 0.933, CFI = 0.943, and RMSEA = 0.059), as indicated in Table 3. We used bootstrapping with 2000 resamples and the 0.95 confidence interval (CI) to determine the relationships between the constructs, and the significance of the path coefficients within the structural model. The results regarding standardized path coefficients (β) and explained variances (R^2) are presented in Fig. 2.

Regarding the causal relationship in our research model, H1 was supported according to the significant path coefficient from the omnichannel platform to situational involvement ($\beta = 0.276$ and $p < 0.001$). Similarly, the platform synergy effect on situational involvement was confirmed by the significant path coefficient ($\beta = 0.243$ and $p < 0.001$). Thus, H2 was supported. H3 was also supported by the results, which indicated that personalized incentives were positively and significantly associated with situational involvement ($\beta = 0.552$ and $p < 0.001$). Finally, for H4 and H5, situational involvement had a positive significant relationship with usability experiences ($\beta = 0.880$ and $p < 0.001$) and unique experiences ($\beta = 0.838$ and $p < 0.001$). Thus, H4 and H5 were supported. The findings regarding the supported five hypotheses (H1–H5) are summarized in Table 5. In addition, the explained variances (R^2) for the two dependent variables, including usability and hedonic experiences, were 0.77 and 0.70, respectively. Overall, the results provided support for the proposed research hypothesis. The findings indicated that together the model could explain 77 % of variance in usability experiences and 70 % in hedonic experiences. The magnitude and significance of these path coefficients provided support for the nomological validity of our research model. As a whole, the research model had powerful explanatory power for consumer experiences in omnichannel retailing environments.

5.2.2. Mediation analysis

The hypotheses H6_a, H6_b, H6_c, H6_d, H6_e, and H6_f argued that

Table 4
Construct Correlations, Convergent Validity and Reliability.

Constructs	Mean	S.D.	OCP	PS	PI	SI	HE	UE
Omnichannel Platform (OCP)	3.972	0.688	0.739*					
Platform Synergy (PS)	3.819	0.736	0.359	0.781*				
Personalized Incentive (PI)	3.906	0.724	0.464	0.362	0.746*			
Situational Involvement (SI)	3.821	0.728	0.564	0.452	0.593	0.718*		
Hedonic Experience (HE)	3.689	0.731	0.412	0.347	0.619	0.549	0.826*	
Usability Experience (UE)	3.884	0.709	0.476	0.477	0.613	0.596	0.564	0.748*
Average Variance Extracted (AVE)			0.546	0.610	0.557	0.516	0.682	0.560
Cronbach's α			0.833	0.815	0.844	0.777	0.865	0.835
Composite Reliability			0.783	0.824	0.834	0.762	0.865	0.836

Note: * Diagonal elements are the square roots of the AVE of the construct. Below them are the correlation coefficients between. Diagonal elements should be larger than off-diagonal elements for discriminant validity.

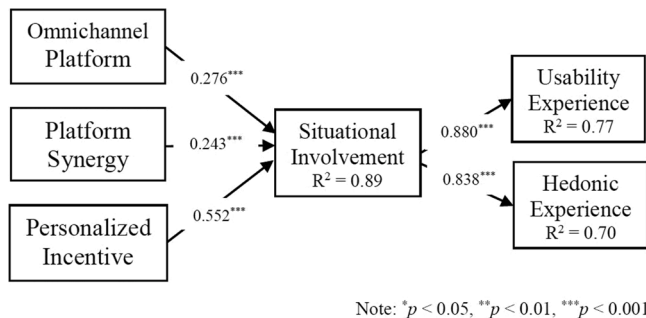


Fig. 2. Structural model.

Table 5
Hypotheses (H1-H5) Testing Results.

Hypothesis	Path	Standardized Regression Coefficient (β)	Standard Error (S.E.)	t-value	Result
H1	OCP → SI	0.276***	0.091	3.571	Supported
H2	PS → SI	0.243***	0.058	3.661	Supported
H3	PI → SI	0.552***	0.081	6.350	Supported
H4	SI → UE	0.880***	0.086	9.486	Supported
H5	SI → HE	0.838***	0.100	9.757	Supported

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

situational involvement mediates the effects of omnichannel platforms, platform synergies, and personalized incentives on hedonic and usability experiences, respectively. To test the mediation effects, according to the guidelines for mediation analysis in SEM [89], we used the Sobel test [97] and bootstrap method [98,99] to examine the statistical significance of each mediation effect. As indicated in Table 6, all total, indirect and direct effects were significant for H6_a, H6_b, H6_c, H6_d, H6_e, and H6_f, except for the direct effects of the omnichannel platform on usability experiences (H6_a) and hedonic experiences (H6_b) and the direct effect of platform synergy on hedonic experiences (H6_d). We estimated the magnitude of mediation effects. The strength of mediation was computed from variance accounted for (VAF) [100]. The results revealed that (1) 61.66 % and 73.31 % of the omnichannel platform affected usability and hedonic experiences through situational involvement, respectively; (2) 49.83 % and 64.33 % of platform synergy affected usability and hedonic experiences through situational involvement, respectively; and (3) 36.52 % and 27.07 % of the personalized incentive affected usability and hedonic experiences through situational involvement, respectively. Because VAF was greater than 20 %, as

suggested by Hair et al. [100], the mediation effects of situational involvement were confirmed.

Next, we conducted the Sobel test. The results revealed that Sobel test statistics were significant ($p < 0.01$), thereby supporting the presence of the mediation effects. In addition, we examined the statistical significance of each mediation effect through the bootstrap method. Testing the mediation involved using the product-of-coefficients approach and bootstrapping the CI including bias-corrected 95 % CI and percentile 95 % CI to test total, indirect, and direct effects [98]. The results are presented in Table 6. For H6_a, the indirect effect ($\beta = 0.460$, $p < 0.01$, upper and lower bounds of 95 % bias-corrected CI = 0.261–1.048, and upper and lower bounds of percentile 95 % CI = 0.253–0.994) was significant because zero was not in the 95 % CIs, and the direct effect ($\beta = 0.286$, $p > 0.05$, upper and lower bounds of bias-corrected CI = -0.244–0.564, and upper and lower bounds of percentile 95 % CI = -0.261–0.562) was not significant because zero was in the 95 % CIs between the omnichannel platform and usability experience. Thus, the effect of the omnichannel platform on usability experiences was fully mediated by situational involvement. Similarly, full mediation was found for H6_b and H6_d because the indirect effects were significant and the direct effects were not significant because zero was in the 95 % CIs. These results confirmed that the effects of the omnichannel platform on usability and hedonic experiences (H6_a and H6_b) and the effect of platform synergy on hedonic experiences (H6_d) were fully mediated by situational involvement.

However, we found that indirect and direct effects were statistically significant in H6_c, H6_e, and H6_f because zero was in the 95 % CIs. The results confirmed that the situational involvement partially mediated the effect of platform synergy on usability experiences (H6_b) and the effect of personalized incentives on usability and hedonic experiences (H6_e and H6_f). In Table 6, we summarize the mediation analysis results and the magnitude of mediations. Overall, the results supported H6_a, H6_b, H6_c, H6_d, H6_e, and H6_f in the research model as hypothesized.

6. Discussion and conclusion

Driven by the need for a theoretical explanation for the factors that create consumer experiences in omnichannel retailing context, our empirical results revealed interesting findings. The omnichannel platform, platform synergy, and personalized incentives all influenced situational involvement, which led to enhanced usability and hedonic experiences for consumers. These results were consistent with those of prior research by Mosquera et al. [5] and Melero et al. [19]. Similarly, enhanced hedonic experiences were likely to occur from situational involvement in such an environment [24]. For the omnichannel platform, platform synergy, and personalized incentives on situational involvement, the results indicated that situational involvement was mostly influenced by personalized incentives, followed by the omnichannel platform and platform synergy. These findings established the relationships between the three drivers of consumer involvement and consumer experiences.

Table 6
Mediation Analysis Results.

Effects	Sobel Test	VAF	Estimate	Product of Coefficients		Bootstrap Method		Result
	Sobel z-value			S.E.	z-value	Bias-Corrected 95% CI (Lower-Upper)	Percentile 95% CI (Lower-Upper)	
H6 _a : SI mediates OCP → UE	4.173***	61.66%						
Total Effect			0.746	0.092	8.120***	0.579-0.934	0.568-0.927	Full Mediation
Indirect Effect			0.460	0.192	2.396**	0.261-1.048	0.253-0.994	
Direct Effect			0.286	0.206	1.388	-0.244-0.564	-0.261-0.562	
H6 _b : SI mediates OCP → HE	4.076***	73.31%						
Total Effect			0.723	0.089	8.124***	0.563-0.908	0.560-0.898	Full Mediation
Indirect Effect			0.530	0.237	2.236*	0.274-1.153	0.267-1.108	
Direct Effect			0.193	0.249	0.775	-0.442-0.482	-0.417-0.490	
H6 _c : SI mediates PS → UE	4.541***	49.83%						
Total Effect			0.572	0.092	6.217***	0.407-0.761	0.411-0.765	Partial Mediation
Indirect Effect			0.285	0.093	2.418**	0.165-0.539	0.161-0.519	
Direct Effect			0.287	0.109	2.633**	0.073-0.500	0.070-0.498	
H6 _d : SI mediates PS → HE	4.610***	64.43%						
Total Effect			0.596	0.109	5.477***	0.411-0.826	0.419-0.836	Full Mediation
Indirect Effect			0.384	0.141	2.723**	0.206-0.742	0.204-0.739	
Direct Effect			0.212	0.134	1.582	-0.071-0.447	-0.079-0.443	
H6 _e : SI mediates PI → UE	3.364***	36.52%						
Total Effects			0.661	0.077	10.116***	0.550-0.848	0.538-0.837	Partial Mediation
Indirect Effect			0.248	0.089	2.787**	0.108-0.470	0.100-0.444	
Direct Effect			0.413	0.110	3.755***	0.235-0.675	0.219-0.659	
H6 _f : SI mediates PI → HE	2.663**	27.07%						
Total Effect			0.846	0.086	9.837***	0.699-10.034	0.692-1.023	Partial Mediation
Indirect Effect			0.229	0.097	2.631**	0.368-0.849	0.366-0.849	
Direct Effect			0.617	0.121	5.099***	0.085-0.471	0.071-0.444	

Note: *p < 0.05, **p < 0.01, ***p < 0.001; VAF (variance account for) = indirect effect / total effect × 100; CI, confidence interval; S.E., standard error.

In relation to the mediation effects of situational involvement, we found that (1) situational involvement had partial mediating effects on the relationship between personalized incentives and consumer experiences, (2) situational involvement had partial and full mediating effects on the relationships between platform synergy and usability and hedonic experiences, and (3) situational involvement had full mediating effects on the relationship between the omnichannel platform and consumer experiences. These results confirmed the mediating role of the “object of activity” raised by Allen et al. [16] and were consistent with prior research, such as that by Mosquera et al. [5] and Foroudi et al. [24]. Hence, situational involvement was critical for mediating the creation or strengthening of usability and hedonic experiences within an omnichannel retailing environment. Omnichannel consumer experiences could be strengthened by raising the level of situational involvement.

Given the magnitude of their direct and indirect effects, as described in Table 6, the results indicated that (1) omnichannel platform affected usability and hedonic experiences only indirectly through situational involvement (full mediation), (2) platform synergy only indirectly affected hedonic experiences (full mediation) but had direct and indirect effects on usability experiences (partial mediation), and (3) personalized incentives had direct and indirect effects on usability and hedonic experiences (partial mediation).

For an omnichannel retailing context, consumer involvement is crucial because of the need to participate in consumer journeys, interact with other members or merchants through myriad touch points, exchange information, and make product purchases [5,15]. Regarding these full mediation effects, possible reasons for them may be that omnichannel platforms merely offer integrated channels and that touchpoints and relevant information embedded within the omnichannel environment do not guarantee better consumer experiences.

Some intervening factors must have facilitated consumers’ activities

to affect their usability and hedonic experiences. Omnichannel platforms, regardless of their innovation, have no substantial effects on consumers’ experiences without first affecting their situational involvement. Instead, the platforms affect consumers’ experiences through their active participation by interacting within the omnichannel retailing context. Similarly, platform synergy is the positive capability associated with the interactions between consumers and omnichannel platforms. Some intervening factors must facilitate consumers’ activities to affect their usability experience.

Regarding the aforementioned partial mediation effect, personalized incentives are the perceived amount of individualized consumer information, services, rewards, or incentives offered within the omnichannel retailing environment. The personalized information offered to consumers could direct and indirectly (through situational involvement) affect their usability and hedonic experiences. In addition, highly relevant content is useful for users to engage in shopping activities and collaborate with friends to earn rewards and various shopping activities based on their unique preferences. This can also drive consumers to explore novel recommendations (products, locations, and services) and for excitement when reviewing and processing personalized incentives, thereby further enhancing consumers’ usability and hedonic experiences [25]. Similarly, with platform synergy, consumers may be better able to perceive playfulness, enjoyment, and relief offered within the omnichannel retailing environment. In addition, this capability can facilitate consumers to feel greater involvement with various consumer activities to further enhance hedonic experiences through consumer involvement.

6.1. Theoretical implications

This study makes three key theoretical contributions. Our first contribution to the theory was related to the omnichannel nomological

framework for consumer involvement within a consumer journey as advanced by Lemon and Verhoef [6]. Such consumer involvement behavior has value extraction consequences. To date, given that many channels and touch points are highly interactive and provide multiple opportunities for consumers to engage with firms, to consider consumer involvement is critical [6]. We identified situational involvement as a crucial construct and noted that it plays an important mediating role in influencing usability and hedonic experiences in an omnichannel retailing context. These findings extended our understanding of the nomological network of consumer experiences for consumer involvement within a consumer journey, which added to the activity theory literature.

Our second contribution was related to the mediating role of the object of activity on the relationship between other components (e.g., the subject or tool) and outcomes. Activity theory proposes a strong notion of mediation—all human experiences are shaped by the tools and systems used. Activity theory focuses on a range of relationships, and academic interest rests on the relationship between the subject and object of activity with the mediating effects of tools [16,76]. How the object of activity affects the overall outcome is a novel perspective regarding the activity theory. Our study helped us gain a more granular understanding of the mediating role of the object of activity and offered further explanatory power to the activity theory framework. Furthermore, our data empirically confirmed the motivation–subject, tool–object, and subject–object relationships that were mediated by the tool. Although omnichannel retailing research is of growing interest to IS researchers, to the best of our knowledge, this is the first study to empirically test these relationships within an omnichannel environment.

Based on the activity theory, to highlight the need to add the determinant “motivation” to drive subject interaction, our third contribution was related to our empirical results that personalized incentives had a direct effect on situational involvement. This finding confirms Allen et al. [16] argument that motivation should be considered as a precursor to the activity theory. By conducting an activity to achieve goals within an omnichannel retailing context, consumers’ motivations such as receiving personalized services with benefits to facilitate involvement are a key consideration [16,17,59]. Much of the IS literature regarding activity theory addresses its theoretical opportunities and limitations rather than empirical support [16,17,59]. Our study helped gather insights into the role of motivation in the activity theory to better understand consumers’ motivation, how it can be personalized to drive situational involvement and how value can be added to the consumer experience, and how consumers can be offered unique incentives from the dynamic relationship between consumers and the omnichannel platform.

6.2. Practical implications

This study contributed to an emerging stream of research on omnichannel retailing, which is quickly becoming the future of retail, although it is still in its infancy. For a practitioner, this signifies that omnichannel platforms should be designed with intelligent and contextually aware features to “know” and empower consumers and offer relevant suggestions that consumers may find appealing. Such platforms should have functionalities that can provide users with greater flexibility and convenience when connecting to and interacting with various channels to identify themselves, share information with others, query information, monitor their environment, and make payments and transactions [5,19,73], such as by enabling consumers to conduct webrooming and showrooming, making payments using an app, and obtaining product comments from social networks, official websites, online live-streaming videos, and product RFID (Radio Frequency Identification).

In addition, the platform should provide personalized incentives and services to consumers (e.g., individualized rewards, virtual coupons, and

membership points that a consumer can use for preferred services or products). Examples of personalized services include parking assistance, personalized indoor shopping guidance and product delivery options, free tickets to experience music performances and movies that best match the consumer’s interest, dining suggestions, and price promotions on desired products to enable unique consumer experiences. By integrating these, the platform should create and provide novel shopping scenarios, such as real-time marketing events, interacting and sharing information with friends and other consumers, webrooming and showrooming, and digital fitting rooms for consumers to easily achieve their goals.

To attract consumers, omnichannel retailing service providers should offer better personalized services with benefits to facilitate consumer involvement and lead to the creation of superior consumer experiences. Furthermore, providers should offer synchronous feedback and communication regarding promotions and marketing activities during interactions with consumers across a range of channels and touchpoints to ensure that relevant information is easily matched during the consumer journey [5,25]. As the omnichannel platform gets to know consumers, it becomes better able to match consumers’ real-time shopping needs. Thus, consumers can enjoy multiple omnichannel retailing benefits through a greatly enhanced consumer situational involvement process, such as by having increased efficiency, monetary benefits, novelty, and enjoyment, to generate a unique shopping experience [5,7,8,71].

6.3. Limitations and future study

Several limitations should be acknowledged in this study. First, the activity theory is a multilevel theory [56] that involves factors beyond the omnichannel platform. For instance, our research model did not apply the full activity theory model by omitting rules and norms, community and the division of labour that may influence consumer experiences. In addition, this study did not consider control variables that may influence consumer experiences outside the omnichannel environment (e.g., shopping mall crowd numbers and shopping orientation), and these may limit the explanatory power of the results. Further studies should consider the aforementioned factors and control variables and examine their influences on the proposed model. Second, the usual caveats on using single informants and self-reported data apply to this study. Some caution should be applied when generalizing the findings to other online shopping contexts. In addition, data from convenient sampling approaches and web survey instruments do not represent entire populations, and this may limit the generalizability of this study. Further studies should expand the boundaries of the analysis to other populations. The consumer responses in this study are cross-sectional data. Time and resource constraints do not allow for the iteration of data collection to observe consumer involvement and experiences over time to determine any long-term effects of the discussed factors. Future research should consider a longitudinal approach to validate and extend the model as proposed in this current research.

6.4. Conclusion

Overall, prior research has rarely provided a comprehensive understanding of the antecedents and the role of situational involvement in facilitating consumer experiences in emerging omnichannel retailing environments. This study extended our understanding of the nomological network of consumer experiences for consumer involvement within a journey; filled a research gap by establishing and investigating the unconsidered mediating role of the object of activity on the relationships between the subject, tool, and outcome; and confirmed Khayyat’s [17] argument that motivation is a precursor to the fourth-generation activity theory.

Acknowledgments

This research was supported by the Ministry of Science and Technology, Taiwan under operating grants MOST 105-2420-H-110-002-MY3 and was partially supported by the Aim for the Top University Plan of National Sun Yat-Sen University and Ministry of Education, Taiwan. The authors would like to thank the Alibaba Group for arranging site visits and Mr. Yifan Zhang (President, Hangzhou Xinlongxing Commercial Development Co., Ltd. Shangcheng Branch, China) for his help in data collection.

References

- [1] R. Chadha, In China, Smart Retailers Are Looking Beyond O2O – Giants Like Alibaba Are Investing Heavily in Omnichannel, *EMarketer*, 2017. <https://www.emarketer.com/Article/China-Smart-Retailers-Looking-Beyond-O2O/1015925>.
- [2] Alizila, Alibaba Bids to Privatize China's Intime Department Stores, 2017. <http://www.alizila.com/alibaba-bids-to-privatize-chinas-intime-department-store/>.
- [3] E. Harris, A Look at Omni-channel Retailing, 2012. <http://www.retailsolutionsonline.com/doc/a-look-at-omni-channel-retailing-0001>.
- [4] Alizila, How Working with Alibaba Has Changed Retailer Intime., 2018. <https://www.alizila.com/how-working-with-alibaba-has-changed-chinese-retailer-intime/>.
- [5] A. Mosquera, C. Olarte Pascual, E. Juaneda Ayensa, Understanding the customer experience in the age of omni-channel shopping, *Rev. ICONO 15* (2) (2017) 166–185, 14.
- [6] K.N. Lemon, P.C. Verhoef, Understanding customer experience throughout the customer journey, *J. Mark.* 80 (6) (2016) 69–96.
- [7] D. Carroll, I. Guzman, The New Omni-channel Approach to Serving Customers, *Accenture*, 2015, pp. 1–16 (Accessed November 20, 2018), https://www.researchgate.net/profile/Hussin_Hejase/post/Can_anyone_refer_the_authors_who_first_introduced_the_term_omnichannel_And_the_term_omnicustomer/attachment.
- [8] Y. Li, H. Liu, E.T.K. Lim, J.M. Goh, F. Yang, M.K.O. Lee, Customer's reaction to cross-channel integration in omnichannel retailing: the mediating roles of retailer uncertainty, identity attractiveness, and switching costs, *Decis. Support Syst.* 109 (2018) 50–60.
- [9] P.C. Verhoef, P.K. Kannan, J.J. Inman, From multi-channel retailing to omnichannel retailing: introduction to the special issue on multi-channel retailing, *J. Retail.* 91 (2) (2015) 174–181.
- [10] K.L. Ailawadi, P.W. Farris, Managing multi- and omni-channel distribution: metrics and research directions, *J. Retail.* 93 (1) (2017) 174–181.
- [11] M. Yrjölä, H. Saarjärvi, H. Nummela, The value propositions of multi-, cross-, and omni-channel retailing, *Int. J. Retail Distrib. Manag.* 46 (11) (2018) 1133–1152.
- [12] L. Cao, L. Li, The impact of cross-channel integration on retailers' sales growth, *J. Retail.* 91 (2) (2015) 198–216.
- [13] J. Gong, M.D. Smith, R. Telang, Substitution or promotion? The impact of price discounts on cross-channel sales of digital movies, *J. Retail.* 91 (2) (2015) 343–357.
- [14] X.L. Shen, Y.J. Li, Y. Sun, N. Wang, Channel integration quality, perceived fluency and omnichannel service usage: the moderating roles of internal and external usage experience, *Decis. Support Syst.* 109 (2018) 61–73.
- [15] S. Shi, Y. Wang, X. Chen, Q. Zhang, Conceptualization of omnichannel customer experience and its impact on shopping intention: a mixed-method approach, *Int. J. Inf. Manage.* 50 (2020) 325–336.
- [16] D. Allen, A. Brown, S. Karanasios, A. Norman, How should technology-mediated organizational change be explained? A comparison of the contributions of critical realism and activity theory, *MIS Q.* 37 (3) (2013) 835–854.
- [17] M. Khayyat, A proposed model for the fourth generation of activity theory to be applied on the smart city research, *Thirty Seventh Int. Conf. Inf. Syst.* (2016) 5–8. <http://iot-smartcities.lero.ie/wp-content/uploads/2016/12/A-proposed-mode-1-for-the-fourth-generation-of-Activity-Theory-1.pdf>.
- [18] S.C. Wang, J.H. Wu, Proactive privacy practices in transition: toward ubiquitous services, *Inf. Manage.* 51 (1) (2014) 93–103.
- [19] I. Melero, F. Javier Sese, P.C. Verhoef, Recasting the customer experience in today's omnichannel environment, *Universia Bus. Rev.* 50 (2016) 18–37.
- [20] W. Piotrowicz, R. Cuthbertson, Introduction to the special issue information technology in retail: toward omnichannel retailing, *Int. J. Electron. Commer. Stud.* 18 (4) (2014) 5–16.
- [21] S.A. Neslin, D. Grewal, R. Leghorn, V. Shankar, M.L. Teerling, J.S. Thomas, P. C. Verhoef, Challenges and opportunities in multichannel customer management, *J. Serv. Res.* 9 (2) (2006) 95–112.
- [22] E. Pantano, H. Timmermans, What is smart for retailing? *Procedia Environ. Sci.* 22 (2014) 101–107.
- [23] A.L. Ostrom, A. Parasuraman, D.E. Bowen, L. Patrício, C.A. Voss, Service research priorities in a rapidly changing context, *J. Serv. Res.* 18 (2) (2015) 127–159.
- [24] P. Foroudi, S. Gupta, A. Nazarian, M. Duda, Digital technology and marketing management capability: achieving growth in SMEs, *Qual. Mark. Res.* 20 (2) (2017) 230–246.
- [25] H. Zhu, C.X.J. Ou, W.J.A.M. van den Heuvel, H. Liu, Privacy calculus and its utility for personalization services in e-commerce: an analysis of consumer decision-making, *Inf. Manage.* 54 (4) (2017) 427–437.
- [26] I. Pletikosa Cvijikj, F. Michaelles, Online engagement factors on Facebook brand pages, *Soc. Netw. Anal. Min.* 3 (4) (2013) 843–861.
- [27] M.N. Faisal, H. Khan, A structural analysis of the enablers of u-commerce proliferation in a developing economy, *Int. J. Product. Perform. Manag.* 65 (7) (2016) 925–946.
- [28] Y. Chen, C.M.K. Cheung, C.W. Tan, Omnichannel business research: opportunities and challenges, *Decis. Support Syst.* 109 (2018) 1–4.
- [29] R. Hansen, S.K. Sia, Hummel's digital transformation toward omnichannel retailing: key lessons learned, *MIS Q. Exec.* 14 (2) (2015) 51–66.
- [30] J.C. Kim, S.H. Chun, Cannibalization and competition effects on a manufacturer's retail channel strategies: implications on an omni-channel business model, *Decis. Support Syst.* 109 (2018) 5–14.
- [31] S. Burford, A. Resmini, Cross-channel information architecture for a world exposition, *Int. J. Inf. Manage.* 37 (6) (2017) 547–552.
- [32] P. Rodríguez-Torrico, R. San José Cabezedo, S. San-Martín, Tell me what they are like and I will tell you where they buy. An analysis of omnichannel consumer behavior, *Comput. Human Behav.* 68 (5) (2017) 465–471.
- [33] M.J. Arnold, K.E. Reynolds, Hedonic shopping motivations, *J. Retail.* 79 (2) (2003) 77–95.
- [34] R. Sánchez-Fernández, M.Á. Iniesta-Bonillo, The concept of perceived value: a systematic review of the research, *Mark. Theory.* 7 (4) (2007) 427–451.
- [35] T. Mirsch, C. Lehrer, R. Jung, Channel integration towards omnichannel management: a literature review, *Pacific Asia Conf. Inf. Syst. PACIS 2016 - Proc., Chiayi, Taiwan* (2016).
- [36] C. Aubrey, D. Judge, Re-imagine retail: why store innovation is key to a brand's growth in the 'new normal', digitally-connected and transparent world, *J. Brand Strateg.* 1 (1) (2012) 31–39.
- [37] R. Bhalla, The omni-channel customer experience: driving engagement through digitisation, *J. Digit. Soc. Media Mark.* 1 (2014) 365–372. <http://henrystewart.metapress.com/app/home/contribution.asp?referrer=parent&backto=issue,8,12;journal,1,4;linkingpublicationresults,1:122831,1>.
- [38] C. Lazaris, A. Vrechopoulos, From multichannel to "omnichannel" retailing: review of the literature and calls for research, in: *2nd Int. Conf. Contemp. Mark. Issues, (ICCM)*, Athens, Greece, 2014.
- [39] C. Homburg, D. Jozić, C. Kuehn, Customer experience management: toward implementing an evolving marketing concept, *J. Acad. Mark. Sci.* 45 (2017) 377–401.
- [40] J.J. Brakus, B.H. Schmitt, L. Zarantonello, Brand experience: what is it? How is it measured? Does it affect loyalty? *J. Mark.* (2009).
- [41] P.C. Verhoef, K.N. Lemon, A. Parasuraman, A. Roggeveen, M. Tsiros, L. A. Schlesinger, Customer experience creation: determinants, dynamics and management strategies, *J. Retail.* 85 (1) (2009) 31–41.
- [42] B. Mittal, Measuring purchase-decision involvement, *Psychol. Mark.* 6 (2) (1989) 147–162.
- [43] R.W. Palmatier, V. Kumar, C.M. Harmeling, *Customer Engagement Marketing*, Palgrave Macmillan, Switzerland, 2018.
- [44] R.N. Bolton, *Service Excellence: Creating Customer Experiences That Build Relationships*, Business Expert Press, New York, 2016.
- [45] P.S.H. Leeflang, P.C. Verhoef, P. Dahlström, T. Freundt, Challenges and solutions for marketing in a digital era, *Eur. Manag. J.* 32 (1) (2014) 1–12.
- [46] L.D. Hollebeek, M.S. Glynn, R.J. Brodie, Consumer brand engagement in social media: conceptualization, scale development and validation, *J. Interact. Mark.* 28 (2) (2014) 149–165.
- [47] B.J. Calder, M.S. Isaac, E.C. Malthouse, How to capture consumer experiences: a context-specific approach to measuring engagement: predicting consumer behavior across qualitatively different experiences, *J. Advert. Res.* 56 (1) (2016) 39–52.
- [48] V. Kumar, A. Pansari, Competitive advantage through engagement, *J. Mark. Res.* 53 (8) (2016) 497–516.
- [49] O. Tyrväinen, H. Karjaluo, Omnichannel experience: towards successful channel integration in retail, *J. Cust. Behav.* 18 (1) (2019) 17–34.
- [50] W.K. Chen, D.S. Chang, C.C. Chen, The role of utilitarian and hedonic values on users' continued usage and purchase intention in a social commerce environment, *J. Econ. Manag.* 13 (2017) 193–220.
- [51] M.B. Holbrook, E.C. Hirschman, The experiential aspects of consumption: consumer fantasies, feelings, and fun, *J. Consum. Res.* 9 (1982) 132–140.
- [52] B.J. Babin, W.R. Darden, M. Griffin, Work and/or fun: measuring hedonic and utilitarian shopping value, *J. Consum. Res.* 20 (1994) 644–656.
- [53] B.Y. Ozkara, M. Ozmen, J.W. Kim, Examining the effect of flow experience on online purchase: a novel approach to the flow theory based on hedonic and utilitarian value, *J. Retail. Consum. Serv.* 37 (2017) 119–131.
- [54] S.H. Park, Z. Zhao, Alibaba Group: Fostering an E-Commerce Ecosystem, 2016.
- [55] É.V. Il'enkov, *Dialectical Logic: Essays on Its History and Theory*, Moscow: Progress, 1977.
- [56] K. Kuutti, Activity theory as a potential framework for human-computer interaction research, in: B.A. Nardi (Ed.), *Context and Consciousness: Activity Theory and Human-Computer Interaction*, MA: The MIT Press, Cambridge, 1995.
- [57] G.O. Wiredu, User appropriation of mobile technologies: motives, conditions and design properties, *Inf. Organ.* 17 (2) (2007) 110–129.
- [58] K. Kuutti, Activity theory, transformation of work, and information systems design, in: Y. Engeström, R. Miettinen, R.L. Punamäki-Gitai (Eds.), *Perspectives on Activity Theory—Learning in Doing: Social, Cognitive and Computational Perspectives*, Cambridge University Press, Cambridge UK, 1991.
- [59] K. Singh, Study of achievement motivation in relation to academic achievement of students, *Int. J. Educ. Plan. Adm.* 1 (2) (2011) 161–171.

- [60] D. Allen, S. Karanasios, M. Slavova, Working with activity theory: context, technology, and information behavior, *J. Am. Soc. Inf. Sci. Technol.* 62 (4) (2011) 776–788.
- [61] S.S. Liaw, M. Hatala, H.M. Huang, Investigating acceptance toward mobile learning to assist individual knowledge management: based on activity theory approach, *Comput. Educ.* 54 (2) (2010) 446–454.
- [62] G. Adomavicius, A. Tuzhilin, Toward the next generation of recommender systems: a survey of the state-of-the-art and possible extensions, *IEEE Trans. Knowl. Data Eng.* 17 (6) (2005) 734–749.
- [63] S. Nevo, M. Wade, Firm-level benefits of IT-enabled resources: a conceptual extension and an empirical assessment, *J. Strateg. Inf. Syst.* 20 (4) (2011) 403–418.
- [64] M.L. Richins, P.H. Bloch, E.F. McQuarrie, How enduring and situational involvement combine to create involvement responses, *J. Consum. Psychol.* 1 (2) (1992) 143–153.
- [65] D.H. Park, J. Lee, I. Han, The effect of on-line consumer reviews on consumer purchasing intention: the moderating role of involvement, *Int. J. Electron. Commer.* 11 (4) (2007) 125–148.
- [66] M.H. Huang, Flow, enduring, and situational involvement in the web environment: a tripartite second-order examination, *Psychol. Mark.* 23 (5) (2006) 383–411.
- [67] I.B. Hong, Understanding the consumer's online merchant selection process: the roles of product involvement, perceived risk, and trust expectation, *Int. J. Inf. Manage.* 35 (2015) 322–336.
- [68] H.Y. Wang, C. Liao, L.H. Yang, What affects mobile application use? The roles of consumption values, *Int. J. Mark. Stud.* 5 (2) (2013) 11–22.
- [69] Y.C. Chen, J.H. Wu, L. Peng, R.C. Yeh, Consumer benefit creation in online group buying: the social capital and platform synergy effect and the mediating role of participation, *Electron. Commer. Res. Appl.* 14 (6) (2015) 499–513.
- [70] S. Nambisan, P. Nambisan, How to profit from a better virtual customer environment, *MIT Sloan Manag. Rev.* 49 (3) (2008) 53–61.
- [71] P. Nambisan, J.H. Watt, Managing customer experiences in online product communities, *J. Bus. Res.* 64 (8) (2011) 889–895.
- [72] T. Kohler, J. Fueller, K. Matzler, D. Stieger, Co-creation in virtual worlds: the design of the user experience, *MIS Q.* 35 (3) (2011) 773–788.
- [73] C.L. Hsu, J.C.C. Lin, An empirical examination of consumer adoption of Internet of Things services: network externalities and concern for information privacy perspectives, *Comput. Human Behav.* 62 (2016) 516–527.
- [74] K. Heinonen, Consumer activity in social media: managerial approaches to consumers' social media behavior, *J. Consum. Behav.* 10 (6) (2011) 356–364.
- [75] P.H. Bloch, M.L. Richins, A theoretical model for the study of product importance perceptions, *J. Mark.* 47 (3) (1983) 69–81.
- [76] B.A. Nardi, Context and Consciousness: Activity Theory and Human-computer Interaction, The MIT Press, Cambridge, MA, 1996.
- [77] R. Chen, R. Sharman, H.R. Rao, S.J. Upadhyaya, Data model development for fire related extreme events: an activity theory approach, *MIS Q.* 37 (1) (2013) 125–141.
- [78] Y. Ha, S.J. Lennon, Online visual merchandising (VMD) cues and consumer pleasure and arousal: purchasing versus browsing situation, *Psychol. Mark.* 27 (2) (2010) 141–165.
- [79] S.B. MacKenzie, P.M. Podsakoff, N.P. Podsakoff, Construct measurement and validation procedures in MIS and behavioral research: integrating new and existing techniques, *MIS Q.* 35 (2) (2011) 293–334.
- [80] J.H. Wu, L. Peng, Q. Li, Y.C. Chen, Falling in love with online shopping carnival on singles' day in China: an uses and gratifications perspective, 2016 IEEE/ACIS 15th Int. Conf. Comput. Inf. Sci. ICIS (2016) 1–6.
- [81] X. Xu, Q. Li, L. Peng, T.L. Hsia, C.J. Huang, J.H. Wu, The impact of informational incentives and social influence on consumer behavior during Alibaba's online shopping carnival, *Comput. Human Behav.* 76 (2017) 245–254.
- [82] C.H. Lawshe, A quantitative approach to content validity, *Pers. Psychol.* 28 (4) (1975) 563–575.
- [83] Number of monthly active WeChat users from 2nd quarter 2011 to 1st quarter 2020, (n.d.). <https://www.statista.com/statistics/255778/number-of-active-wechat-messenger-accounts/>.
- [84] J.S. Armstrong, T.S. Overton, Estimating nonresponse bias in mail surveys, *J. Mark. Res.* 14 (3) (1977) 396–402.
- [85] J.B. Tabachnick, B.G. Fidell, L.S. Ullman, *Using Multivariate Statistics*, MA: Pearson, Boston, 2007.
- [86] K.A. Bollen, *Structural Equations With Latent Variables*, Wiley-Interscience Publication, New York, NY, 2014.
- [87] W.W. Chin, Issues and opinion on structural equation modeling, *MIS Q.* 21 (1) (1998) 7–16.
- [88] D. Gefen, D. Straub, M.C. Boudreau, Structural equation modeling and regression: guidelines for research practice, *Commun. Assoc. Inf. Syst.* 4 (1) (2000) 2–77.
- [89] J. Hair, W. Black, B. Babin, R. Anderson, *Multivariate Data Analysis: A Global Perspective*, 7th ed., Prentice Hall, NJ, 2010.
- [90] P.M. Podsakoff, S.B. MacKenzie, J.Y. Lee, N.P. Podsakoff, Common method biases in behavioral research: a critical review of the literature and recommended remedies, *J. Appl. Psychol.* 88 (5) (2003) 879.
- [91] L.J. Williams, J.R. Edwards, R.J. Vadenberg, Recent advances in causal modeling methods for organizational management research, *J. Manage.* 29 (6) (2003) 903–936.
- [92] L.T. Hu, P.M. Bentler, Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives, *Struct. Equ. Model.* 1 (6) (1999) 1–55.
- [93] R.B. Kline, *Principles and Practice of Structural Equation Modeling*, Guilford Press, NY, 2010.
- [94] R.P. Bagozzi, Y. Yi, On the evaluation of structural equation models, *J. Acad. Mark. Sci.* 16 (1988) 74–94.
- [95] M. Bearden, W.O. Netmeyer, R.G. Mobley, *Handbook of Marketing Scales: Optimal Number of Response Categories 12 Multi-Item Measures for Marketing and Consumer Behavior Research*, Sage, CA Newbury Park, 1993.
- [96] C. Fornell, D.F. Larcker, Evaluating structural equation models with unobservable variables and measurement error, *J. Mark. Res.* 18 (3) (1981) 39–50.
- [97] M.E. Sobel, Asymptotic confidence intervals for indirect effects in structural equation models, *Sociol. Methodol.* 13 (1982) 290–312.
- [98] K.J. Preacher, A.F. Hayes, Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models, in: *Behav. Res. Methods* (2008) 879–891.
- [99] K.J. Preacher, A.F. Hayes, SPSS and SAS procedures for estimating indirect effects in simple mediation models, *Behav. Res. Methods Instrum. Comput.* 36 (4) (2004) 717–731.
- [100] A. Leguina, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, Sage, Thousand Oaks, 2015.

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