



Research Note

When digitalized customers meet digitalized services: A digitalized social cognitive perspective of omnichannel service usage

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ABSTRACT

With the prevalence of digital technologies, various services have grown digitalized. Specific to the marketing section, multichannel has been gradually replaced by omnichannel, which aims to integrate all the physical and digital channels tightly. Although omnichannel has received considerable attention, there is still a dearth of research that theorizes the multi-faceted impacts of digitalization on omnichannel. This study thus extends social cognitive theory (SCT) to the digitalized context and contextualizes the digitalized customer and digitalized environment as mobile identity and channel integration quality, respectively. Moreover, based on the self-regulation process of human agency, we incorporate omnichannel self-efficacy, satisfaction, and habit as the agentic factors to interpret a customer's conscious (ability and expectancy beliefs) and unconscious (automatic behavioral tendency) decision-making under the omnichannel setting. Through an online survey of 401 omnichannel customers, we find support for all the proposed hypotheses. Implications and limitations of this study are further discussed.

1. Introduction

In the past few years, advanced technologies have enabled people to obtain goods and services through a variety of channels including the Internet, mobile devices, social media, as well as brick-and-mortar stores (Aswani, Kar, Ilavarasan, & Dwivedi, 2018; Kamboj, Sarmah, Gupta, & Dwivedi, 2018; Shen, Li, Sun, & Wang, 2018). Nevertheless, the multi-channel systems consist of different channels developed and managed separately by different retailers, usually creating fragmented data and inconsistent information (Saghiri, Wilding, Mena, & Bourlakis, 2017). Thus, integrating the information and service from numerous channels calls for a transition from multi-channel to omnichannel, which can leverage synergies and provide customers with smooth experiences across channels (Verhoef, Kannan, & Inman, 2015). The latest report from *Target Marketing* shows that over 74 % of the surveyed managers considered it important to provide a cohesive omnichannel service for customers (McGee, 2018).

Although omnichannel has attracted extensive attention from industry, extant omnichannel research is at its initial stage where some scholars attempt to ascertain the drivers of customers' omnichannel purchase (Juaneda-Ayensa, Mosquera, & Murillo, 2016; Yurova, Rippé, Weisfeld-Spolter, Sussan, & Arndt, 2017), switching intention (Chang, Wong, & Li, 2017; Li et al., 2018), and omnichannel service usage

(Rodríguez-Torrico, José, Cabezedo, & San-Martín, 2017; Shen et al., 2018; Zhang, Ren, Wang, & He, 2018). Notably, digitalization has substantially renovated the retailing industry by offering alternatives to traditional business models (Frishammar, Cenamor, Cavalli-Björkman, Hernel, & Carlsson, 2018). To be specific, digitalization facilitates the integration of various channels and initiates unique retailing strategies (e.g., showrooming and buy-online-and-pick-up-in-store) for retailers to take into account (Gao & Su, 2017; Gu & Tayi, 2017). Given this change of retailing environment, customers' omnichannel behaviors may have different causes from previous findings. However, no prior literature has made such distinction and investigated omnichannel behaviors from the digitalization perspective. Thus, our first research question is *How to view the omnichannel behaviors from the perspective of digitalization?*

Omnichannel thrives in the digitalized soil (Saghiri et al., 2017; Shen et al., 2018). It differs from single- or multi-channel since digital technologies have profoundly altered the interaction between retailers and customers (Frishammar et al., 2018). In the conventional two-sided market, customers purchase goods from either offline stores or e-commerce sites; while retailers tend to manage their marketing channels severally. Digitalization is breaking these routines. First, digitalization drives customers to increasingly rely on mobile devices for searching and comparing the products or services (Chang et al., 2017; Singh &

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Swait, 2017). For this reason, customers may be more concerned about the variance of the price and quality across different channels. Second, digitalization also fuels the integration of multiple distribution channels (Verhoef et al., 2015), which enables better channel arrangement and resource allocation on the retailer side. Finally, the transformation of personal attributes and retailing strategies in turn triggers the shift of customers' behavioral patterns from single- or multi-channel purchase to omnichannel service usage. In sum, digitalization has exerted significant impacts on customers' attributes, retailing environment, and the follow-up behaviors.

To advance this stream of research, we draw upon social cognitive theory (SCT), which posits that personal factors, environment, and behavior affect each other reciprocally (Bandura, 1986). Given the sweeping influence of digitalization on retailing environment, customers, and their decision making, SCT is suitable for current research to theorize the triadic relationships in the digitalized context. Nevertheless, extant researchers have made scarce effort to combine SCT with the digitalized contexts. Specifically, mobile phones are becoming the most effective devices in daily life and customers get accustomed to finishing transactions on mobile terminals (Alalwan, Dwivedi, & Rana, 2017; Shareef, Dwivedi, Kumar, & Kumar, 2017; Soror, Hammer, Steelman, Davis, & Limayem, 2015). Meanwhile, digital technologies enhance data management and facilitate retailers to deploy a wider scope of services orderly (Brynjolfsson, Hu, & Rahman, 2013; Yoo, Henfridsson, & Lyytinen, 2010). On these accounts, we argue that although technologies can be regarded as an environment factor in general (Chen, 2014), digital technologies, in particular, have integrated cohesively with customers and the environment under the omnichannel setting (Singh & Swait, 2017; Verhoef et al., 2015). Therefore, the second research question is *How to contextualize the digitalized person and digitalized environment to the omnichannel setting?*

Further, self-efficacy, satisfaction, and habit are considered as the agentic factors representing both conscious and unconscious decision-making under the omnichannel setting. Within SCT, human agency emphasizes a person's self-regulation over his behavior. Previous scholars mainly regarded self-efficacy and outcome expectation as the ability and expectancy beliefs in the self-regulation process (e.g., Dhir, Kaur, & Rajala, 2018; Kwahk, Ahn, & Ryu, 2018). Handling omnichannel is challenging, nevertheless omnichannel can also provide a unique and convenient experience for customers. Thus, customers need to exercise their competences to handle omnichannel but they generally obtain satisfying expectations from using omnichannel service. In this respect, self-efficacy still holds whereas satisfaction should play the role of expectancy beliefs. Moreover, since relevant experiences may facilitate the formation of habit (Cui, Zhang, & Lowry, 2017), we include omnichannel habit as the unconscious element in the omnichannel context.

This paper sheds light on existing literature and practice in several ways. First, the study views omnichannel behaviors from the digitalization perspective by proposing a digitalized SCT framework. Although several previous studies have stressed the significance of digitalization for omnichannel (Frishammar et al., 2018; Saghiri et al., 2017; Shen et al., 2018), how to investigate omnichannel behaviors from the digitalization angle is still unknown. Current work makes the first attempt on combining SCT with digitalization to explore the mechanisms of customers' omnichannel behaviors. Second, we contextualize the digitalized person and digitalized environment as mobile identity and channel integration quality, which provides empirical evidence about the impacts of digitalization on individual customers and retailing environment in the omnichannel context and further, inspires future research to investigate the technical mechanisms underlying the digitalized person and digitalized environment. Third, this study extends the self-regulation framework by regarding omnichannel habit as an agentic factor reflecting the unconscious process. Since customers are able to assess the products and services across various channels, they may gradually develop the behavioral tendency to make omnichannel

purchase. Thus, omnichannel habit can function as an automatic mindset that enlarges the ability (i.e., omnichannel self-efficacy) and expectancy (i.e., omnichannel satisfaction) beliefs. Fourth, this research also contributes to the extant literature by providing theoretical explanation and empirical validation for the effects of mobile identity and channel integration quality on the three agentic factors. Practically, our work seeks to address the inconsistency and detachment problems across channels in various industries. For example, the laptop brand Dell and Lenovo often launch sales promotion on some specific channels. Besides, apparel retailers (e.g., Uniqlo) are facing with a dilemma where the discount and inventory information disaccords between the online and offline channels in a transient time. By contextualizing the impact of digitalization, this study furnishes retailers with several operable suggestions to tightly integrate their existing channels.

2. Literature review and theoretical foundation

2.1. Omnichannel service

The concept omnichannel is perceived as an evolution of multichannel. While multichannel operates channels as independent entities, omnichannel aims to integrate all the information in different channels and provide customers with fluent and consistent services (Brynjolfsson et al., 2013). Prior scholars have made a clear distinction between omnichannel and multichannel (Juaneda-Ayensa et al., 2016; Shen et al., 2018; Verhoef et al., 2015). Compared to the multichannel, omnichannel covers a full range of touchpoints and operates cross-channel management (Du, Cui, & Su, 2018). Besides, unlike the non-circulation state in multichannel, the data is shared across channels in omnichannel (Shen et al., 2018). Moreover, omnichannel guarantees a complete and consistent interaction for customers and it allows retailers to adapt selling strategies based on customer's certain needs (Juaneda-Ayensa et al., 2016). As a result, omnichannel service refers to a type of service that offers customers free options among all parallel channels without information loss and redundancy (Shen et al., 2018).

Recently, omnichannel behaviors have received considerable attention and we summarize relevant empirical works in Table 1. It is obvious that the majority of scholars applied survey method to investigate the causes of omnichannel purchase (Juaneda-Ayensa et al., 2016; Yurova et al., 2017), switching intention (Chang et al., 2017; Li et al., 2018), and omnichannel service usage (Rodríguez-Torrico et al., 2017; Shen et al., 2018; Zhang et al., 2018) based on well-developed theories. Existing research has regarded omnichannel features, customer's perceptions, and retailer's strategies as the antecedents of customers' omnichannel behaviors. While these studies have advanced our understanding of omnichannel to some extent, we argue that omnichannel implies a fairly unique paradigm. In the single- or multi-channel retailing, physical stores or e-commerce sites often bring either party (i.e., retailers and customers) some hassle costs (e.g., the rents for retailers or delivery charges for customers) (Gao & Su, 2017). Nevertheless, digital technologies facilitate customers to switch across various shopping channels, evaluate the quality of products or services, and make purchase decisions (Brynjolfsson et al., 2013). In this respect, digitalization initials unique strategies for retailers which can also benefit customers.

2.2. Digitalization

Digitalization signifies a widespread, evolving phenomenon that attracts continuous concerns (Nambisan, Lyytinen, Majchrzak, & Song, 2017). Generally, digitalization is described as a manifold socio-technical process of adopting and using digital technologies in broader individual and social contexts (Legner et al., 2017). Although often used interchangeably in previous research, digitalization should be clearly distinguished from the term "digitization", which is proposed by computer scientists to represent the technical process of converting

Table 1
Review on omnichannel customer behavior.

Author	Method	Theories	Antecedents	Outcomes
Shen et al. (2018)	Online survey	Wixom & Todd model	Channel choice breadth; channel service transparency; content consistency; process consistency; perceived fluency; internal/external usage experience.	Omnichannel service usage
Li et al. (2018)	Online survey	Push-pull-mooring (PPM) framework	Gross-channel integration; retailer uncertainty; showrooming; identity attractiveness; switching costs.	Customer retention; interest in alternatives.
Zhang et al. (2018)	Online survey	Stimulus-organism-response (SOR) framework	Customer perception of channel integration; customer empowerment; trust; satisfaction.	Patronage intention
Rodríguez-Torrico et al. (2017)	Online survey	N/A	Impulsiveness; need for touch.	Mobile/online omnichannel frequency; frequency of channel use.
Chang et al. (2017)	Online survey	SOR framework	Perceived benefits of search; perceived costs of search; perceived service quality; perceived price; mobile characteristics; perceived quality of mobile search; switching costs; m-shopping self-efficacy	Information search behavior; perceived value; attractiveness of mobile store; switching intention.
Yurova et al. (2017)	Online survey	N/A	Non-interactive adaptive selling; interactive adaptive selling; purchase control; initial purchase intention; product type (hedonic vs. utilitarian).	Omnichannel customer purchase intention
Juameda-Ayensa et al. (2016)	Online survey	TAM; UTAUT	Effort expectancy; performance expectancy; social influence; habit; hedonic motivation; personal innovativeness; perceived security.	Omnichannel customer purchase intention
Park and Lee (2017)	Secondary data	N/A	Gender; age; registration via mobile; total purchase; SMS subscription; push message subscription number; average purchase price; event purchase; average discount; coupon usage; product categories; purchase on the air.	Channel choice behavior
Chatterjee and Kumar (2017)	Secondary data	N/A	Retailer channel strategy (omnichannel vs. pure-play online); product type (experiential vs. functional & durable vs. non-durable).	Willingness to pay more

analog signals into a digital form, and ultimately into binary digits (Tilson, Lyytinen, & Sørensen, 2010). Therefrom, different from digitalization which indicates the principles of digital technologies, digitalization moreover puts emphasize on the fundamental transformation of society under the effect of digital technologies.

Specific to the marketing section, extant literature has highlighted the potential benefits of digital technologies to implement shopping analytics (Duan, Edwards, & Dwivedi, 2019; Germann, Lilien, Fiedler, & Kraus, 2014) and operation strategies (Rigby, 2014). However, the prevalence and importance of digitalization from both sides of retailers and customers have been neglected by prior studies. In particular, digitalization has created new functions and promoted data management. On one hand, digital technologies allow retailers to improve management operations and reduce costs (Bell, Gallino, & Moreno, 2018). On the other hand, digital technologies save customers' time and improve both the evaluation and acquisition of products and services (Gao & Su, 2017; Gu & Tayi, 2017). For example, digitalization forces the “buy online and pick up in store” (BOPS) strategy, which prompts customers to purchase the products from online channels and collect them in offline stores nearby (Gao & Su, 2017). Meanwhile, the BOPS strategy can also facilitate retailers to flexibly manage their inventory. To this end, digitalization contributes to the transformation of retailing ecosystem which incorporates individuals' mindsets, channel deployments, and the subsequent omnichannel service usage.

2.3. Social cognitive theory (SCT)

Originally coined by Bandura, SCT postulates a “triadic reciprocity” between personal, environmental and behavioral factors where a person's behavior is influenced by social systems and his characteristics or cognitions (Bandura, 1986). The paradigm of social cognition shifts along with the development of human agency, which denotes the capacity to exercise control over the action (Bandura, 1989). In other words, to be an agent is to intentionally make things happen by one's behaviors (Bandura, 2001). Much of the early psychological theorizing was built on behavioristic principles advocating an input-output model linked by an internal conduit that renders behavior possible but exerts no influence on behavior (Bandura, 1986). However, this model could not reflect the cognitive process of a mind as several scholars emphasized the important role of consciousness and agentic capabilities (Carlson, 1997). For this reason, the input-output model was then replaced by an input-throughput-output model in which environmental stimuli activate a cognitive organism, which subsequently produces the behavioral responses (Bandura, 2001).

SCT has been widely adopted as the theoretical framework in information system (Dhir et al., 2018; Lee, Lee, & Lee-Geiller, 2020; Lin & Chang, 2018; Peng, Sun, & Guo, 2018) and business fields (Newman, Tse, Schwarz, & Nielsen, 2018). Notably, most scholars regarded self-efficacy (Dhir et al., 2018; Newman et al., 2018) and outcome expectation (Kwahk et al., 2018; Lin & Chang, 2018) as the key cognitive forces guiding an individual's behavior. This is consistent with previous research stating that personal and situational factors influence behaviors through a self-regulation process in which people make evaluations and establish cognitive beliefs (Turel, 2015). Self-efficacy pertains to the ability belief concerning specific courses of action while outcome expectation implies the expectancy belief about the anticipated consequences of one's own behavior (Bandura, 1989). Specific to this study, when exposed to an advanced shopping mode, people will certainly assess both their competences to master it and the possible outcomes if they use it. Since omnichannel service can satisfy customers' demands for smooth and convenient experiences, they naturally expect satisfactory outcomes from omnichannel service usage. Meanwhile, omnichannel is rather distinct from traditional shopping and it urges customers to develop certain abilities. Hence, self-efficacy still works but outcome expectation should be replaced by omnichannel satisfaction. Moreover, self-efficacy and satisfaction can only represent

the conscious process but fail to cover the unconscious aspect. Given the related experience that customers accumulate in daily life, they may also form omnichannel habit and automatically use omnichannel service (Cui et al., 2017). This unconscious part can complement the original self-regulation process in human agency. Accordingly, current study incorporates omnichannel self-efficacy, satisfaction, and habit as the agentic factors.

Furthermore, the proposed relationships between person, environment, and behavior was initially established in the physical environment lacking the consideration of digitalization. The development of digital technologies has rendered contemporary world digitalized (Frishammar et al., 2018). Digitalization is fundamentally influencing every aspects of our daily life and the essence of individuals and environment may be changed (Park & Lee, 2017). In this regard, we contend that the reciprocal triangle of SCT should be more sophisticated in the digital epoch. This study seeks to add digitalization as an impetus for the triangle. The impacts of digitalization can be threefold. First, digital technologies can save time and improve the acquisition and evaluation for products and services (Choudhury & Karahanna, 2008). This means digitalization may alter customers' cognitions, thoughts, and attitudes in their lives. Second, digital technologies change current environment by enriching functions and facilitating the management of data (Yoo et al., 2010). From this respect, digital technologies allow retailers to provide services at a broader scale and coordinate varieties of channels (Brynjolfsson et al., 2013). Third, digitalization transforms behavioral patterns in that it provides people with abundant choices. For instance, digital technologies enable customers to use offline stores as showrooms and try the product before purchasing it online (Gao & Su, 2017). Conversely, the digitalized person, digitalized environment, and digitalized behavior can also provide feedbacks for digital technologies to make corresponding adjustments. These interactions shape an updated circulation that contextualizes SCT to the digitalized setting and thus guides our research (as shown in Fig. 1).

Specific to the omnichannel context, digital technologies have endowed customers and environment with digitalized attributes that are distinct from those in single- or multi-channel (Frishammar et al., 2018). In what follows, we will discuss the concepts regarding digitalized person and digitalized environment under omnichannel setting.

2.4. Mobile identity as digitalized person

Mobile identity derives from the attachment theory which was initially developed in the domain of parent-infant relationships (Bowlby, 1979), suggesting that human beings are born with an inherent psychological system that drives them to maintain proximity to those

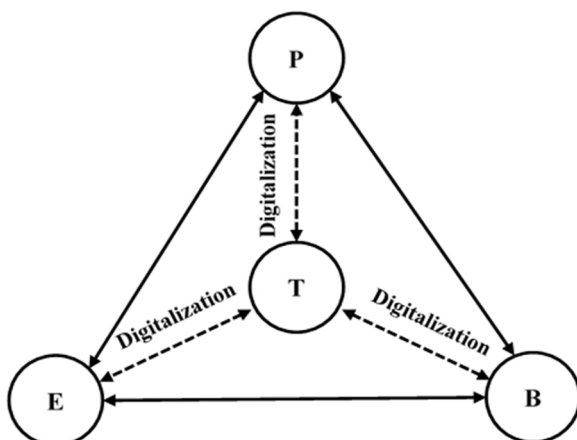


Fig. 1. Digitalized SCT framework.

Note: P: person; E: environment; B: behavior; T: technology.

supportive others who are responsive to their needs, so as to seek protection from threats and to attain emotional safety (Bowlby, 1982). As individuals tend to keep such intense relationships, they are mentally willing to allocate affective, cognitive and behavioral resources towards the attached target (Fedorikhin, Park, & Thomson, 2008). Although early psychological scholars mainly focused on people's attachment to close others, tourism research also utilized this theory to examine individual's attachment to places of interests (Williams & Vaske, 2003; Yuksel, Yuksel, & Bilim, 2010). Specifically, place attachment was divided into two dimensions, namely place identity and place functional dependence.

Mobile identity refers to the degree to which users regard a certain mobile technology as a component of their self-identity (Lou, 2014). In accord with place identity, mobile identity is not associated with functions, but it manifests the importance of mobile technologies in defining and holding individual identity, and functions as a repository for emotions that gives meaning and purpose to life (Williams & Vaske, 2003). As discussed previously, digitalization signifies a comprehensive process which is fundamentally changing individuals' minds and daily behaviors, we contend that under such conditions, mobile technologies play an essential role in assisting individuals with their decision-making across various contexts. Given this transformation, people increasingly attach themselves to their mobile devices. Such an attachment is not limited to the functional supports, but moreover points to the symbolic and emotional meanings for most people. Hence, we regard mobile identity, rather than other concepts as the contextualization of digitalized person.

Despite quantities of literature on place identity, scarce research has inherited Lou's effort to validate the role of mobile identity under other contexts (Balapour, Reyhjav, Sabherwal, & Azuri, 2019). In this study, mobile identity can signify how digital technologies influence individuals as elaborated below. With the trend of digitalization, mobile devices have become a rather powerful tool to complete the daily routines (Soror et al., 2015). Gradually, conventional offline transactions are replaced by digital ones in mobile terminals. As a result, the cognitive shift takes place in that people heavily rely on their mobile devices and they grow digitalized. From this point, mobile identity captures the extent to which persons and digital technologies are closely bonded together as a whole.

2.5. Channel integration quality as digitalized environment

Sousa and Voss have conceptualized a framework of channel integration quality, which divided it into channel service configuration and integrated interactions (Sousa et al. 2006). Further, channel service configuration quality comprises breadth of channel choice and transparency of channel service. Breadth of channel choice is defined as the degree to which customers can select alternative channels for a given service and the degree to which customers can complete preferred tasks through each available channel. Transparency of channel service refers to the extent to which customers are aware of the existence of all available channels and of differences between service attributes across different channels. Integrated interactions are composed of content consistency and process consistency. Content consistency is described as the consistency between the information exchanged with the customers through different channels. Process consistency pertains to the consistency between the relevant and comparable process attributes of the front offices associated with different channels (Sousa & Voss, 2006). Thus, channel integration with the four aspects above will ensure a reliable and coordinating service experience for customers and we will also adopt this partition for channel integration quality.

Channel integration quality is defined as "the extent to which a firm coordinates the objectives, design, and deployment of its existing channels to create synergies and offer particular benefits to its customers" (Cao & Li, 2015; Hossain, Akter, Kattiyapornpong, & Dwivedi, 2019). Several existing studies have confirmed the pivotal effect of

channel integration quality on customer’s cognition and behavior (Du et al., 2018; Hossain, Akter, Kattiyapornpong, & Dwivedi, 2020; Shen et al., 2018; Shi, Wang, Chen, & Zhang, 2020; Yang, Gong, Land, & Chesney, 2020). For instance, Shen et al. (2018) verified that integration quality would facilitate customers’ perceived fluency when using omnichannel service. Hossain et al. (2020) examined how perceived channel integration quality impacted the cross-buying behavior and customer value in an omnichannel environment. As discussed previously, omnichannel is distinct from multichannel because it concentrates on coordinating all the channels closely (Hossain et al., 2019). Digital technologies are accelerating the integration of online and offline touchpoints and facilitating several unique retailing strategies (e.g., showrooming and BOPS) (Frishammar et al., 2018). Consequently, channel integration quality can be regarded as the fusion between the environment and digital technologies in this paper.

3. Research model and hypotheses development

According to the preceding review, we utilize the digitalized SCT framework to develop a research model. Specifically, Notes: Dashed arrows denote the controlled relationships.

Fig. 2 depicts our proposed research model. Because SCT depicts the reciprocity of person, environment, and behavior, omnichannel service usage is regarded as the indispensable behavioral factor in the research model. Moreover, since the effects of satisfaction, self-efficacy, and habit on service usage have been validated in prior literature (Wang, Harris, & Patterson, 2013), reexamining these relationships may contribute little to existing research. Therefore, we did not propose the hypotheses toward omnichannel service usage. However, to demonstrate their agentic roles and the conscious-unconscious decision-making process, we still involved the effects of omnichannel satisfaction, self-efficacy, and habit on omnichannel service usage in the data analysis, because only when such agentic factors are able to account for omnichannel service usage can we confirm the significance of incorporating them into the research model. Next, we provide detailed justifications for each hypothesis.

3.1. The role of mobile identity

Mobile identity stresses the emotional ties based on the fact that mobile technologies have become a part of an individual’s self-identity (Lou, 2014; Williams & Vaske, 2003). Such a symbolic connection concerns whether mobile technologies can help people to retain their personal identities (Williams & Vaske, 2003). Thus, it is reasonable to infer that customers with a higher level of mobile identity will develop positive responses toward the activities related to mobile technologies.

Several scholars in the tourism field have validated the significant effect of place identity on satisfaction about visiting (Yuksel et al., 2010). Specific to the omnichannel context, we also presume this relation to hold because omnichannel service largely depends on mobile devices (Verhoef et al., 2015). That is, the more customers attach themselves to mobile technologies, the more likely they are satisfied with their omnichannel experiences.

H1. Mobile identity is positively related to omnichannel satisfaction

Additionally, mobile identity may promote the behavioral tendencies correlated to mobile technologies (Lou, 2014). Per attachment theory, as people tend to maintain their self-identity, they are willing to spend cognitive and behavioral resources towards the attached targets (e.g., their mobile devices) (Park, MacInnis, Priester, Eisingerich, & Iacobucci, 2010). In this regard, the mobile device can serve as an arena for customers to shape the behavioral propensity of conducting a behavior. Moreover, trait activation theory, which asserts that situational factors of a behavior are affected by how the situation is perceived (Mischel, 1973; Tett and Guterman, 2000), can also support this argument. Specific to this study, when customers establish strong symbolic bonds with their mobile devices, they are more likely to shape omnichannel habit since omnichannel cohesively integrates mobile channel with other traditional channels (Verhoef et al., 2015). In light of these justifications, we propose:

H2. Mobile identity is positively related to omnichannel habit

Furthermore, we suppose the emotional bonds between individuals and mobile devices to facilitate their personal beliefs about the competence to perform mobile-related behaviors. Because omnichannel is closely related to mobile technologies (Verhoef et al., 2015), customers’ omnichannel usage should be quite relevant to their perceptions about mobile devices. Similarly, trait activation perspective suggests personal traits require trait-relevant situations for their expressions (Kenrick & Funder, 1988; Tett & Guterman, 2000). More precisely, individuals who have regarded mobile devices as an ingredient of their self-identities will develop the positive feelings that omnichannel service is within the scope of their capabilities. Therefore, a higher level of mobile identity will enhance customers’ confidence in their abilities to use omnichannel service.

H3. Mobile identity is positively related to omnichannel self-efficacy

3.2. The role of integration quality

As the most salient feature of omnichannel, channel integration emphasizes the synergetic management of all the channels (Piotrowicz

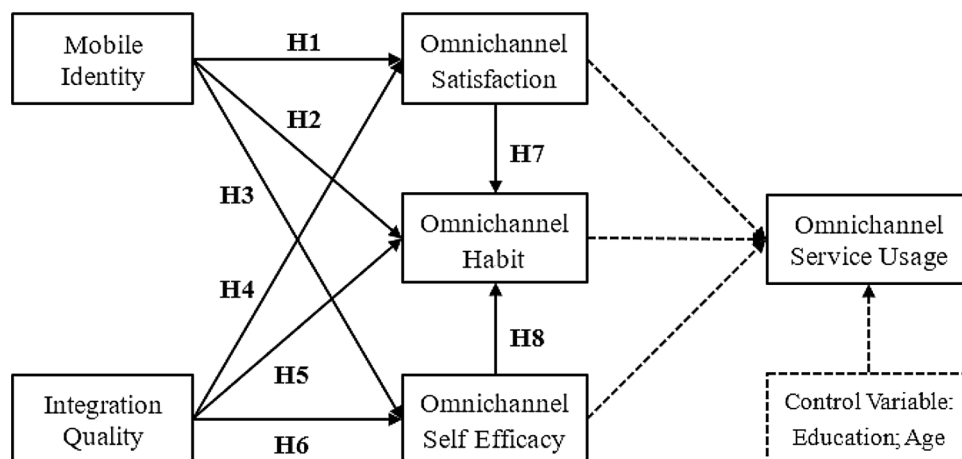


Fig. 2. Research model. Notes: Dashed arrows denote the controlled relationships.

& Cuthbertson, 2014; Verhoef et al., 2015). Previous scholars have confirmed that retailers can leverage channel integration to project a consistent image which satisfies customers' psychological needs for uncertainty avoidance, convenience, flexibility, and self-control (Li et al., 2018). That is to say, channel integration serves as a functional support to eliminate customers' worry about omnichannel service usage. From another angle, customers' evaluations about the technological features and functionalities of an information system would largely determine their perceptions about using the system (Wixom & Todd, 2005). On the basis of these discussions, channel integration quality guarantees customers to fluently obtain whatever they want, and they are thus satisfied with omnichannel experience.

H4. Integration quality is positively related to omnichannel satisfaction

Channel integration also manifests the functionality of omnichannel that surpasses former single- or multi-channel services, inducing customers to abandon the outdated mode and develop new routines (Li et al., 2018). This can be explained through the lens of technology affordance, which delineates the possibilities for goal-oriented actions afforded to specified users by technical objects (Markus & Silver, 2008). More specifically, technology affordance refers to an action potential to what an individual with a particular purpose can do with the technology or information system (Majchrzak & Markus, 2012). Since channel integration denotes the key technological feature of omnichannel (Verhoef et al., 2015), we expect the comparable mechanism to happen: The more retailers can provide customers with unified and fluent services, the more likely they will shape the behavioral tendency to use omnichannel service.

H5. Integration quality is positively related to omnichannel habit

In addition, we postulate that channel integration can offer the conditions to bridge people's cognitive beliefs with the features of omnichannel service. Specifically, a higher degree of channel integration quality may result in the promotion of customer's self-efficacy to use omnichannel service. Again, this bears a resemblance to the affordance perspective, which claims that an affordance is what is offered, provided, or furnished to someone or something by an object (Gibson, 1986). Further, affordance is suggested to concern individuals' perceptions or recognitions about the quality of their environment (Gibson, 1986). That is to say, affordances are the relations between the abilities of actors and features of the environment (Chemero, 2003). According to these arguments, we assume integration of detached channels will enhance the beliefs of customers that they can master omnichannel service.

H6. Integration quality is positively related to omnichannel self-efficacy

3.3. The interplay of agentic factors

Omnichannel satisfaction refers to an enjoyable or positive affective state resulting from the appraisal of omnichannel service. Through this definition, we consider satisfaction as an attitudinal construct that reveals a customer's overall evaluation toward his omnichannel experience. Satisfactory experiences with a behavior are an essential condition for habit development because they improve one's tendency to repeat the same course of action (Aarts, Paulussen, & Schaalma, 1997). More specifically, if a response engendered in an interaction is judged to be satisfying, it will be reproduced under subsequent circumstances from habit rather than thought (Thorngate, 1976). Recently, the relationship between satisfaction and habit has received substantial empirical evidence from information system (Limayem, Hirt, & Cheung, 2007; Turel, 2015) and service management (Wang et al., 2013) disciplines. In the omnichannel context, once customers positively appraise their omnichannel experiences because of the efficiency and consistency that omnichannel offers to them, they are more likely to form the habit of using omnichannel service. Hence, we propose:

H7. Omnichannel satisfaction is positively related to omnichannel habit

Apart from omnichannel satisfaction, we predict that omnichannel self-efficacy will be another facilitator of omnichannel habit. Omnichannel self-efficacy is defined as a customer's beliefs in his abilities to use the omnichannel service. Generally, habit represents an automatic behavioral tendency (Verplanken, Aarts, & Van Knippenberg, 1997). The more confidence a person has in performing a behavior, the more likely he will perform the behavior with little cognitive effort (Wang et al., 2013). Under the omnichannel setting, such effects are salient because the competence beliefs significantly determine how customers feel when dealing with omnichannel service. Concretely speaking, if customers have enough beliefs in their abilities to use omnichannel service, they should be comfortable with omnichannel experience and they are thus more likely to shape the corresponding behavioral tendency; In reverse, if customers lack confidence for omnichannel usage, they may feel stressful and anxious about omnichannel shopping and consequently, they will hesitate to develop the propensity. In this regard, we put forward the following hypothesis:

H8. Omnichannel self-efficacy is positively related to omnichannel habit

4. Methodology

4.1. Research setting

To test the proposed hypotheses, we conducted an online survey to collect data from the omnichannel customers in China. Specifically, *Dianping*, one of the largest local service platforms in Mainland China with more than 200 million active users per month and over 20 million retailers (Shen et al., 2018), was chosen as the research setting. *Dianping* has embraced a platform for restaurants to enforce omnichannel strategies and created seamless dining procedures. Fig. 3 presents the key features of omnichannel service about a brick-and-mortar restaurant on *Dianping*. As shown below, *Dianping* offers a synthetic interface for the restaurant to integrate and present their online and offline services. Customers can access the services through various channels including online website, mobile application, social media, telephone, and offline restaurant. It is notable that *Dianping* eliminates the distinction of online and physical touchpoints, enabling customers to freely enjoy their preferred services across channels. Provided that a customer is near the restaurant, he can check the dinner status on *Dianping* and choose to go for a meal directly or queue for a table on the mobile device (if necessary). When finishing the meal, customers can pay the bills on *Dianping* regardless of whether they order the meals online or offline. For this matter, customers can obtain integrated consumption experiences via *Dianping*.

4.2. Measures

All the measures were adapted from prior studies and have been confirmed to be reliable and valid. Some wordings were slightly modified to fit the omnichannel context. Seven-point Likert scales ranging from "1" to "7" (1 = strongly disagree, 7 = strongly agree) were used for multiple items of all latent constructs. To be specific, channel integration quality was taken as a second-order reflective construct. More concretely, both transparency of channel service and process consistency were measured with the items adapted from Sousa and Voss (2006) and Wu and Chang (2016). Breadth of channel choice was measured using the items adapted from Madaleno, Wilson, and Palmer (2007) and Sousa and Voss (2006). The items measuring content consistency were adapted from Sousa and Voss (2006). Besides, mobile identity was measured with four items adapted from Williams and Vaske (2003). Omnichannel satisfaction was measured with four items adapted from Bhattacharjee (2001) and Coursaris and van Osch (2016)



Fig. 3. A Restaurant’s Omnichannel Service on Dianping.
Notes: †p < 0.1, *p < 0.05, **p < 0.01, ***p < 0.001, ns = nonsignificant.

while omnichannel self-efficacy was measured using three items adapted from Compeau and Higgins (1995). In addition, omnichannel habit was measured with three items adapted from Limayem et al. (2007). Finally, omnichannel service usage was measured with four items adapted from Karahanna, Agarwal, and Angst (2006). Since our investigation was conducted among Dianping users, all the questions were translated into Chinese before the questionnaires were distributed. The constructs and measures were specified in Table 2.

4.3. Data collection procedure

Initially, our questionnaires were randomly distributed to 20 Dianping users. Based on their comments and suggestions, we revised the formats and wordings to ensure the readability and clarity. Then we administrated the formal survey at wjx.cn, which is the largest online professional survey platform in Mainland China and has successfully recruited more than 33 million users to complete over 2.3 billion questionnaires. At the beginning of our questionnaire, we provided a brief introduction about the omnichannel service supplied by the restaurants on Dianping. In addition, two screening questions were included to ensure that the respondents were all active omnichannel service customers (For details about the brief introduction and screening questions, see the Appendix). Finally, 401 qualified samples were obtained and used in the data analysis. The demographics of the respondents were reported in Table 3.

5. Data analysis

Partial least squares (PLS) was used in the data analysis. As a second-generation structural equation modeling (SEM) approach, PLS can estimate the measurement model and structural model

simultaneously and systematically. Moreover, compared to covariance-based SEM approach, PLS is more suitable to deal with small sample size (Hair, Sarstedt, & Ringle, 2011). In our study, given the relatively small sample size, PLS was used in the analysis. Specifically, SmartPLS was adopted as the analytic tool.

5.1. Measurement model

All the constructs were reflectively measured, so the measurement model for the first-order constructs was evaluated by examining their reliabilities, convergent and discriminant validities. The reliability of a construct can be assessed by checking its average variance extracted (AVE) and composite reliability (CR) (Fornell & Larcker, 1981). As shown in Table 4, the AVEs and CRs for all the constructs were greater than 0.5 and 0.8, exceeding the suggested threshold values of 0.5 and 0.7 (Fornell & Larcker, 1981). Therefore, all of these constructs were with appropriate reliabilities.

Convergent validity can be assessed by checking whether or not the item loadings on their respective constructs were high enough while discriminant validity can be assessed by checking whether or not the item loadings on their respective constructs were higher than the loadings on other constructs (i.e., cross-loadings). As shown in Table 5, the item loadings on their respective constructs were higher than 0.7 and these loadings were higher than the cross-loadings, suggesting that these constructs had adequate convergent and discriminant validities.

Another method to evaluate the discriminant validity is to compare the square root of AVE for a construct and the correlation coefficients related to this construct. As shown in Table 4, the square roots of AVE for all the constructs were greater than the correlation coefficients, proving that these constructs were with good discriminant validities (Bock, Zmud, Kim, & Lee, 2005).

Table 2
Constructs and measures.

Constructs	Items	Sources
Mobile Identity	MID1: I feel my mobile device is a part of me. MID2: My mobile device is very special to me. MID3: I am very attached to my mobile device. MID4: I identify strongly with my mobile device.	Williams and Vaske (2003)
Transparency of Channel Service	TCS1: I am aware of the existence of all available service channels. TCS2: I am aware of the differences between services attributes across different channels. TCS3: I know how to utilize different channels to meet my consumption needs.	Sousa and Voss (2006) and Wu and Chang (2016)
Breadth of Channel Choices	BCC1: I can choose alternative channels for a given service. BCC2: I can accomplish preferred tasks through individual channels. BCC3: Regardless of the service channel I choose, I can use other channels to get information or help.	Madaleno et al. (2007) and Sousa and Voss (2006)
Content Consistency	CC1: I receive the same response through different channels. CC2: When I interact with one channel, my interactions with other channels are always taken into account. CC3: The information is consistent across different channels.	Sousa et al. (2006)
Process Consistency	PC1: The service feelings are consistent across different channels. PC2: The service images are consistent across different channels. PC3: The service performance is consistent across different channels.	Sousa and Voss (2006) and Wu and Chang (2016)
Omnichannel Self-Efficacy	SE1: I feel comfortable using the omnichannel service on my own. SE2: I can easily operate the omnichannel service on my own. SE3: I feel comfortable using the omnichannel service even there is no one around me to tell me how to use it.	Compeau et al. (1995)
Omnichannel Habit	HAB1: Using the omnichannel service has become automatic to me. HAB2: Using the omnichannel service is natural to me. HAB3: When faced with a consumption, using the omnichannel service is an obvious choice for me.	Limayem et al. (2007)
Omnichannel Satisfaction	<i>How do you feel about your overall experience of omnichannel service usage?</i> SAT1: Very dissatisfied/Very satisfied. SAT2: Very displeased/Very pleased. SAT3: Very frustrated/Very contented. SAT4: Absolutely terrible/Absolutely delighted.	Bhattacharjee (2001) and Coursaris and van Osch (2016)
Omnichannel Service Usage	OSU1: I have spent much time using the omnichannel service. [#] OSU2: I frequently access the omnichannel service. OSU3: I have used most available channels when dealing with the omnichannel service. OSU4: Most of my interactions with the service are promoted through the omnichannel.	Karahanna et al. (2006)

Note: # The item was deleted because its loading was lower than 0.6.

Table 3
Demographic statistics.

Characteristics	Levels	Frequency	Percentage (%)
Gender	Male	207	51.6
	Female	194	48.4
Age	≤ 30	152	37.9
	31 – 35	126	31.4
	≥ 36	123	30.7
Education	≤ Junior college	57	14.2
	Undergraduate	295	73.6
	≥ Postgraduate	49	12.2
Monthly income (RMB)	< 6000	132	33.0
	6000 – 9999	187	46.6
	10000 – 14999	63	15.7
	≥ 15,000	19	4.7
Dianping omnichannel service usage duration	≤ 3 months	74	18.5
	4 – 6 months	120	29.9
	7 – 12 months	112	27.9
	> 12 months	95	23.7

Further, since all the constructs were measured subjectively from the same sources and at the same time, we also analyzed the common method bias by comparing the variances explained by both the trait factors and method factors (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In particular, with the guideline of Liang, Saraf, Hu, and Xue (2007), we found that the trait factors explained 68.1 % of the total variances while the method factors only explained 0.8 % of the variances (see Table 6), demonstrating that common method bias was not a threat.

Finally, because the correlations between constructs were relatively

high, a multicollinearity concern could arise. However, the regression analysis results indicated that the variance inflation factor (VIF) values for all the constructs were between 1.552 and 3.395. lower than the threshold value 10 since this paper did not involve formative measures (Petter, Straub, & Rai, 2007). Thus, multicollinearity was not a serious problem for the study.

5.2. Structural model

PLS results of the structural model were illustrated in Fig. 4. The results showed that mobile identity positively influenced omnichannel satisfaction ($\beta = 0.094$, $t = 1.701$), omnichannel habit ($\beta = 0.109$, $t = 2.465$), and omnichannel self-efficacy ($\beta = 0.263$, $t = 4.716$). Hence, H1, H2, and H3 were verified. Additionally, integration quality was proved to have significant effects on omnichannel satisfaction ($\beta = 0.546$, $t = 10.130$), omnichannel habit ($\beta = 0.320$, $t = 6.026$), and omnichannel self-efficacy ($\beta = 0.594$, $t = 14.142$), lending supports to H4, H5, and H6. Finally, both omnichannel satisfaction ($\beta = 0.103$, $t = 2.498$) and omnichannel self-efficacy ($\beta = 0.409$, $t = 7.637$) exerted significant positive impacts on omnichannel habit, thus supporting H7 and H8. Consistent with previous research (Wang et al., 2013), omnichannel satisfaction, habit, and self-efficacy were positively associated with omnichannel service usage. Regarding the control variables, education ($\beta = 0.008$, $t = 0.253$) and age ($\beta = -0.033$, $t = 1.046$) were found to have insignificant effects on omnichannel service usage.

5.3. Post-hoc analysis

Since mobile identity exerted a marginally significant impact on

Table 4
Reliabilities and correlations.

	AVE	CR	OSU	IQ-TCS	IQ-BCC	IQ-CC	IQ-PC	OSE	OSA	OHA	MID
OSU	0.679	0.864	0.824								
IQ-TCS	0.597	0.816	0.576	0.773							
IQ-BCC	0.646	0.845	0.593	0.649	0.804						
IQ-CC	0.576	0.803	0.582	0.590	0.663	0.759					
IQ-PC	0.785	0.916	0.297	0.283	0.299	0.541	0.886				
OSE	0.695	0.873	0.719	0.664	0.727	0.617	0.290	0.834			
OSA	0.696	0.902	0.501	0.512	0.481	0.518	0.381	0.492	0.834		
OHA	0.704	0.877	0.724	0.650	0.686	0.658	0.328	0.759	0.537	0.839	
MID	0.685	0.897	0.564	0.536	0.541	0.453	0.152	0.585	0.390	0.562	0.828

Notes: AVE = average variance extracted; CR = composite reliability; OSU = omnichannel service usage; IQ = integration quality; TCS = transparency of channel service; BCC = breadth of channel choice; CC = content consistency; PC = process consistency; OSE = omnichannel self-efficacy; OSA = omnichannel satisfaction; OHA = omnichannel habit; MID = mobile Identity. Boldfaced diagonal elements are the square roots of AVEs.

omnichannel satisfaction, we further explored whether there would be an interaction effect of channel integration quality and mobile identity on omnichannel satisfaction. The results showed that channel integration quality negatively moderated the effect of mobile identity on omnichannel satisfaction ($\beta = -0.092$, $t = 2.144$). Specifically, although customers with higher levels of mobile identity will develop positive responses toward the activities related to mobile technologies (i.e., omnichannel service usage), such an effect may be weaker when channel integration quality increases because integrated services can provide sufficient guarantee for engendering satisfactory evaluation of omnichannel experiences, which surpasses the impact of customers' emotional bonds on omnichannel satisfaction (Li, Liu, Lee, & Huang, 2020; Liu, Li, & Ye, 2018; Mirkovski, Yin, Liu, & Yang, 2019).

6. Discussion

6.1. Key findings

Extending social cognitive theory (SCT) to the digitalized context, this research attempts to disentangle the digitalized customer and digitalized environment in the omnichannel setting, and subsequently examine their influences on omnichannel service usage. Several important findings can be derived from the empirical results.

First of all, this study confirms that mobile identity is positively related to omnichannel satisfaction, habit, and self-efficacy. Despite scant literature that paid attention to mobile identity (Balapour et al., 2019), current research contends that mobile identity is appropriate to embody how customers grow digitalized because mobile devices are increasingly forceful to complete transactions across channels (Alalwan et al., 2017; Shareef et al., 2017; Soror et al., 2015). Under this circumstance, the emotional attachment to mobile devices will naturally facilitate the formation of agentic factors about omnichannel service.

Table 5
Cross-loadings.

	OSU	IQ-TCS	IQ-BCC	IQ-CC	IQ-PC	OSE	OSA	OHA	MID
OSU2	0.821	0.513	0.469	0.494	0.233	0.555	0.419	0.627	0.510
OSU3	0.802	0.431	0.519	0.496	0.279	0.517	0.400	0.567	0.415
OSU4	0.849	0.477	0.480	0.448	0.223	0.518	0.418	0.593	0.464
IQ-TCS1	0.421	0.794	0.590	0.463	0.148	0.549	0.382	0.551	0.500
IQ-TCS2	0.449	0.739	0.410	0.476	0.303	0.448	0.350	0.447	0.305
IQ-TCS3	0.467	0.784	0.498	0.430	0.209	0.540	0.456	0.505	0.433
IQ-BCC1	0.498	0.575	0.848	0.589	0.247	0.636	0.381	0.594	0.468
IQ-BCC2	0.448	0.544	0.773	0.470	0.122	0.578	0.385	0.541	0.418
IQ-BCC3	0.483	0.445	0.788	0.533	0.344	0.537	0.395	0.517	0.417
IQ-CC1	0.484	0.522	0.590	0.793	0.341	0.544	0.411	0.574	0.406
IQ-CC2	0.486	0.495	0.523	0.756	0.311	0.503	0.407	0.535	0.408
IQ-CC3	0.347	0.314	0.385	0.725	0.594	0.345	0.359	0.377	0.204
IQ-PC1	0.240	0.229	0.233	0.463	0.875	0.220	0.359	0.273	0.091
IQ-PC2	0.280	0.282	0.292	0.494	0.888	0.297	0.334	0.324	0.142
IQ-PC3	0.267	0.239	0.266	0.480	0.894	0.249	0.320	0.274	0.168
OSE1	0.563	0.563	0.600	0.520	0.247	0.834	0.410	0.625	0.492
OSE2	0.564	0.568	0.626	0.529	0.246	0.853	0.439	0.655	0.532
OSE3	0.480	0.529	0.592	0.493	0.231	0.815	0.371	0.618	0.437
OSA1	0.436	0.475	0.433	0.493	0.331	0.467	0.805	0.508	0.369
OSA2	0.421	0.447	0.386	0.409	0.297	0.410	0.820	0.454	0.328
OSA3	0.402	0.405	0.410	0.425	0.337	0.385	0.857	0.412	0.295
OSA4	0.406	0.369	0.366	0.388	0.300	0.367	0.853	0.405	0.299
OHA1	0.650	0.589	0.626	0.595	0.297	0.677	0.502	0.877	0.517
OHA2	0.631	0.558	0.557	0.556	0.272	0.655	0.451	0.836	0.481
OHA3	0.533	0.482	0.539	0.500	0.253	0.572	0.392	0.802	0.409
MID1	0.475	0.451	0.473	0.381	0.111	0.509	0.314	0.490	0.832
MID2	0.478	0.428	0.451	0.373	0.154	0.486	0.323	0.453	0.813
MID3	0.406	0.385	0.350	0.314	0.098	0.425	0.266	0.394	0.821
MID4	0.497	0.499	0.500	0.420	0.137	0.508	0.375	0.510	0.843

Notes: OSU = omnichannel service usage; IQ = integration quality; TCS = transparency of channel service; BCC = breadth of channel choice; CC = content consistency; PC = process consistency; OSE = omnichannel self-efficacy; OSA = omnichannel satisfaction; OHA = omnichannel habit; MID = mobile identity.

Table 6
Common method bias analysis.

Construct	Indicator	Trait Factor Loading (R1)	R1 ²	Method Factor Loading (R2)	R2 ²
Omnichannel Service Usage	OSU2	0.738	0.545	0.089	0.008
	OSU3	0.809	0.654	-0.003	0.000
	OSU4	0.921	0.848	-0.083	0.007
Transparency of Channel Service	TCS1	0.758	0.575	0.044	0.002
	TCS2	0.783	0.613	-0.064	0.004
	TCS3	0.779	0.607	0.015	0.000
Breadth of Channel Choice	BCC1	0.820	0.672	0.030	0.001
	BCC2	0.814	0.663	-0.037	0.001
	BCC3	0.778	0.605	0.005	0.000
Content Consistency	CC1	0.691	0.477	0.120	0.014
	CC2	0.682	0.465	0.094	0.009
	CC3	0.916	0.839	-0.231	0.053
Process Consistency	PC1	0.894	0.799	-0.030	0.001
	PC2	0.865	0.748	0.036	0.001
	PC3	0.899	0.808	-0.007	0.000
Omnichannel Self-Efficacy	OSE1	0.815	0.664	0.020	0.000
	OSE2	0.797	0.635	0.062	0.004
	OSE3	0.893	0.797	-0.086	0.007
Omnichannel Satisfaction	OSA1	0.674	0.454	0.159	0.025
	OSA2	0.808	0.653	0.017	0.000
	OSA3	0.910	0.828	-0.063	0.004
	OSA4	0.941	0.886	-0.108	0.012
Omnichannel Habit	OHA1	0.779	0.607	0.108	0.012
	OHA2	0.779	0.607	0.060	0.004
	OHA3	0.971	0.943	-0.183	0.033
Mobile Identity	MID1	0.807	0.651	0.029	0.001
	MID2	0.794	0.630	0.026	0.001
	MID3	0.946	0.895	-0.154	0.024
	MID4	0.768	0.590	0.093	0.009
Average		0.822	0.681	-0.001	0.008

Moreover, in light of trait activation theory (Mischel, 1973; Tett & Guterman, 2000), the relations between mobile identity and agentic factors indicate that customers' digitalized attributes can not only facilitate their pleasing assessments of omnichannel service, but also activate the ability-related traits and behavioral tendencies toward omnichannel service usage.

Second, the results also demonstrate that channel integration quality is positively associated with omnichannel satisfaction, habit, and self-efficacy. Although quantities of previous literature have validated the crucial impacts that channel integration exerts on various omnichannel behaviors (Shi et al., 2020; Yang et al., 2020; Zhang et al., 2018), theoretical underpinnings are still lacking to illuminate its effects. Based on SCT, this study theorizes channel integration quality as

an environmental stimulus that triggers agentic factors (Bandura, 1989, 2001). Further, these relationships also receive supports from the perspective of technology affordance, which is postulated to involve the relationships between the action potentials and environmental characteristics (Chemero, 2003; Gibson, 1986). Therefrom, the improvement of channel integration quality can afford customers with positive evaluation, competence, and propensity about omnichannel service usage.

Third, the study demonstrates that both omnichannel satisfaction and omnichannel self-efficacy are positively related omnichannel habit. While prior scholars have revealed such interrelations in the self-service context (Wang et al., 2013), we retain these constructs and reexamine their relationships in light of human agency (Bandura, 1989; Turel, 2015). Specifically, we uncover an omnichannel customer's self-regulation process in which both his ability belief (omnichannel self-efficacy) and expectancy belief (omnichannel satisfaction) will promote the development of omnichannel habit.

6.2. Theoretical implications

Theoretically, this paper yields multiple implications. Firstly, we pioneer a digitalized view of omnichannel behaviors by combining SCT with digitalization and putting forward a digitalized SCT framework. Although previous works have noticed the role of digitalization in omnichannel (e.g., Shen et al., 2018; Singh & Swait, 2017), none of them, to our knowledge, has pinpointed a comprehensive perspective to theorize the effects of digitalization. Without a theoretical guideline, the role of digitalization cannot be systematically presented and further empirical effort will be hindered. Because SCT claims the interaction between people, environment, and behaviors, it is suitable to delineate the multiple impacts of digitalization in the omnichannel context. Therefrom, we reinterpret SCT from a digitalization perspective and generates a more precise overview of SCT in the digital era.

Second, current study contextualizes the digitalized person and digitalized environment as mobile identity and channel integration quality under the omnichannel setting. While SCT plays an important role in explaining the interaction between personal factors, environment, and behavior (Bandura, 1986), no extant research, to our knowledge, has applied it to the digitalized contexts. Specific to omnichannel service, notwithstanding digital technologies can also be viewed as the environmental factor generally, they have been deeply implanted into individual customers and environment (Singh & Swait, 2017; Verhoef et al., 2015). This is evident in that customers heavily rely on digital technologies to select and purchase goods; also, retailing environment is filled with digitalized elements (e.g., sensors)

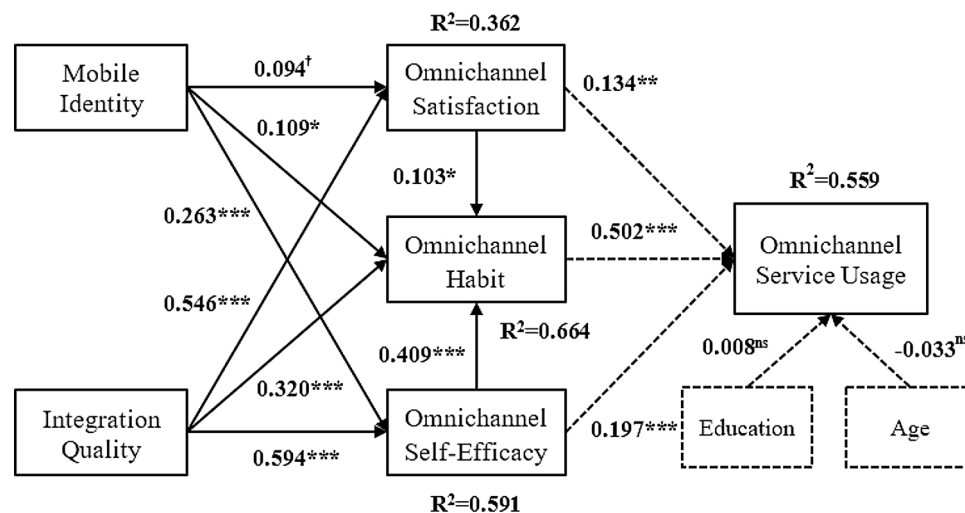


Fig. 4. PLS results.

(Frishammar et al., 2018). On one hand, the development of digital technologies enriches mobile device's functions and customers thus attach more importance to their mobile phones (Lou, 2014; Soror et al., 2015). On the other hand, digitalization makes it possible to coordinate various detached touchpoints and create smooth shopping conditions (Frishammar et al., 2018; Shen et al., 2018). Therefore, mobile identity and channel integration quality can deepen the understanding of customers' omnichannel behaviors and provide new directions for future scholars.

Third, this study extends the self-regulation framework by considering the role of omnichannel habit as an agentic factor that reflects the unconscious process. Specifically, omnichannel service represents a rather unique business model that can provide various benefits for customers (Gao & Su, 2017; Gu & Tayi, 2017). That is to say, customers can obtain satisfying expectations from omnichannel (Zhang et al., 2018). Simultaneously, omnichannel integrates redundant resources and updates the traditional operations of multi-channel retailing (Piotrowicz & Cuthbertson, 2014; Verhoef et al., 2015). Given this transformation, existing scholars also acknowledge the fact that handling omnichannel service is challenging for some customers (von Briel, 2018). Therefore, in light of the human agency's self-regulation perspective, people assess both their capabilities to master the activity and the outcomes from engaging in it (Turel, 2015). We regard omnichannel self-efficacy as the ability belief and omnichannel satisfaction as the expectancy belief. While extant literature has emphasized the expectancy and ability beliefs to portray individuals' conscious decision-making (Kwahk et al., 2018; Lin & Chang, 2018), the unique impact of digitalization on individuals requires extra attention. In particular, digitalization has changed customers' mindsets and transformed their daily routine, driving them to be accustomed to perform omnichannel purchase. This unconscious behavioral tendency (i.e., omnichannel habit) should also be incorporated. On these grounds, our findings enlarge existing literature about the self-regulation process of human agency.

Fourth, this research sheds light on existing literature by offering a theoretical analysis and empirical confirmation about the impacts of mobile identity and channel integration quality on the three agentic factors (i.e., omnichannel satisfaction, self-efficacy, and habit). Although previous scholars have involved agentic factors in the omnichannel context (Chang et al., 2017; Zhang et al., 2018), they did not present a convincing argument in the hypotheses development regarding the antecedents' effects on these agentic factors. Our research utilizes the trait activation and technology affordance lens to unfold a contextualized interpretation for the distinct mechanisms underlying the influences of mobile identity and channel integration quality on the agentic factors.

6.3. Practical implications

Current research also enlightens the omnichannel practice in several ways. First, this study identifies mobile identity as customers' digitalized attributes that influence their omnichannel service usage. Recent years have witnessed the increasing pervasiveness and importance of mobile devices that impel customers to browse and purchase goods at their fingertips (Ono, Nakamura, Okuno, & Sumikawa, 2012; Wang, Malthouse, & Krishnamurthi, 2015). Such advantages are rapidly applied to the omnichannel context that urge omnichannel retailers to branch out their business in the mobile terminals (Chang et al., 2017; Singh & Swait, 2017). Specifically, given the limited variety of products (e.g., clothing and catering) that embrace omnichannel service at present, this study suggests practitioners from other industries, like electronics and furniture, should invest in developing their mobile applications to provide omnichannel retailing for customers.

Second, digitalization initiates several novel retailing strategies for firms to rule in. It also inspires omnichannel managers to achieve the coordination of physical and digital channels and cultivate their

competitive advantages. Specifically, practitioners should offer timely notifications about the status change (e.g., the amounts of available seats in the restaurant or unsold products in each channel) so as to guarantee the service transparency across channels. In addition, managers must pay attention to the congruity between online and offline channels. For instance, a sensitive feedback mechanism is needed to control the variance of pricing and service quality. This is critical when firm attempts to exploit a new channel but the discounts among all the current channels are out of sync. On this occasion, retailers may gain temporary profits from the new channel but suffer the loss of reputation and customers' trust in the long term. Besides, to satisfy customers' demand from different channels, retailers must develop a monitoring system that can realize real-time inventory dispatch. Furthermore, to broaden the scope of channels, marketers are suggested to cooperate with popular social networking sites, such as Facebook and WeChat, through the built-in applets or advertisements.

The third implication can be derived from the interrelations among omnichannel satisfaction, self-efficacy, and habit. The results indicate that both customers' ability beliefs and expectancy beliefs will facilitate the formation of omnichannel habit. Considering that omnichannel is a rather new paradigm where retailer uncertainty and customer switching still exist (Chang et al., 2017; Li et al., 2018), how to cultivate omnichannel habit should be the primary task for managers. On one hand, practitioners can design gamified tutorials within their omnichannel service to familiarize customers with omnichannel procedure and impart abundant skills and competences to them. On the other hand, retailers are supposed to ensure satisfactory omnichannel experiences. Concretely, their omnichannel business should be equipped with well-trained customer service staff who handle the tactics across different channels. Moreover, conducting behavioral analysis based on customers' shopping records is helpful to furnish desired goods via preferred channel for customers, thus satisfying their personalized needs in omnichannel service.

6.4. Limitations and future research

The study also suffers several limitations that should be addressed in the future. First, contextualizing SCT to the omnichannel setting, we argue that digital technologies have blended with individuals and environment, which are captured as mobile identity and channel integration quality. However, these digitalized variables may be closely related to the features of digital technologies such as ubiquity and fluency. Therefore, we strongly recommend further investigation on such mechanisms. Second, the post-hoc analysis revealed that channel integration quality could moderate the impact of mobile identity on omnichannel satisfaction. Although this is not the main focus of current work, we deem it necessary to explore the interaction between the digitalized person and digitalized environment in the future. Third, despite our effort on identifying mobile identity and channel integration quality as the digitalized person and digitalized environment, this research may neglect some important constructs that can also reflect how individuals are reshaped by digitalization (e.g., mobile functional dependence). From this respect, it is worth exploring whether alternative constructs will fit the digitalized SCT framework. Fourth, it is notable that the samples of this paper were all collected from Mainland China. Since previous researchers suggested that persons with different cultural background may have different behavioral motivations (Hofstede, 1980), we suggest future scholars attempt transnational research to validate the generalizability of our findings. Fifth, this study carried out a cross-section survey and all the variables were subjectively measured. Despite the fact that such method could capture respondents' consistent perceptions and judgments, it fails to confirm the causal relations among constructs and may yield minor biases. To better test the hypotheses presented in this paper, longitudinal design should be conducted. Finally, given the pervasiveness and importance of mobile devices, our research investigates omnichannel service usage on the

mobile sides. Nevertheless, recently proposed omnichannel strategies, like showrooming and “buy online and pick-up in stores”, have also emphasized the complementarity among different terminals (Bell et al., 2018; Gao & Su, 2017; Gu & Tayi, 2017). Therefore, future studies can investigate omnichannel service usage via multiple terminals to reach more reliable conclusions.

7. Conclusion

Digitalization has fundamentally reformed firms' retailing deployments and individuals' shopping patterns, accelerating the transition from multichannel to omnichannel. Despite quantity of literature on omnichannel behaviors, no previous scholars have taken the viewpoint of digitalization and investigated the multifaceted impacts of digitalization under the omnichannel setting. To bridge these chasms, this study advances a digitalized social cognitive framework and specifies the digitalized person and digitalized environment as mobile identity and channel integration quality. In particular, the research empirically validates mobile identity and channel integration quality as facilitators of omnichannel satisfaction, self-efficacy, and habit. The results also indicate that both omnichannel satisfaction and omnichannel self-efficacy boost the formation of omnichannel and habit. These findings enhance the understanding of customers' omnichannel behaviors and help practitioners to improve the design and operation of their omnichannel services.

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Appendix A. Survey design

- Brief introduction about omnichannel service

In this questionnaire, omnichannel service pertains to a unique service mode that *Dianping* provides for brick-and-mortar restaurants to integrate their online and offline services without information loss and redundancy.

Specifically, *Dianping* handles a number of procedures in its operation flow, which can be accomplished by various channels. For example, customers can reserve seats, order meals, and pay the bills through WeChat applet, mobile APP, online website, or directly at the restaurant.

- Screening questions

1. In the first question, we provide a list of mobile service APPs (including *Dianping*) for respondents to select up to three options that they frequently use in their daily life. If a respondent does not choose *Dianping*, his or her questionnaire will be immediately closed with a “thank you” note.

2. In the second question, we provide a list of functions (e.g., queuing & reserving seats) for respondents to choose up to three options that they frequently use in *Dianping*. This is to ensure that the respondents can understand and recall the omnichannel service they handle in *Dianping*, which facilitating them to get ready for the subsequent questions. If a respondent selects the option “I am not familiar with any of these functions”, his or her survey will also end up with a “thank you” note.

References

- Aarts, H., Paulussen, T., & Schaalma, H. (1997). Physical exercise habit: On the conceptualization and formation of habitual health behaviours. *Health Education Research, 12*(3), 363–374.
- Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management, 37*(3), 99–110.
- Aswani, R., Kar, A. K., Ilavarasan, P. V., & Dwivedi, Y. K. (2018). Search engine marketing is not all gold: Insights from twitter and SEO clerks. *International Journal of Information Management, 38*(1), 107–116.
- Balapour, A., Reyhavan, L., Sabherwal, R., & Azuri, J. (2019). Mobile technology identity and self-efficacy: Implications for the adoption of clinically supported mobile health apps. *International Journal of Information Management, 49*, 58–68.
- Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1989). Human agency in social cognitive theory. *The American Psychologist, 44*(9), 1175–1184.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*(1), 1–26.
- Bell, D. R., Gallino, S., & Moreno, A. (2018). Offline showrooms in omnichannel retail: Demand and operational benefits. *Management Science, 64*(4), 1629–1651.
- Bhattacharjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly, 25*(3), 351–370.
- Bock, G.-W., Zmud, R. W., Kim, Y.-G., & Lee, J.-N. (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS Quarterly, 29*(1), 87–111.
- Bowlby, J. (1979). *The making and breaking of affectional bonds*. London: Tavistock.
- Bowlby, J. (1982). *Attachment and loss: Attachment*. Arizona: Basic Books.
- Brynjolfsson, E., Hu, Y. J., & Rahman, M. S. (2013). Competing in the age of omnichannel retailing. *MIT Sloan Management Review, 54*(4), 23–29.
- Cao, L., & Li, L. (2015). The impact of cross-channel integration on retailers' sales growth. *Journal of Retailing, 91*(2), 198–216.
- Carlson, R. (1997). *Experienced cognition*. Mahwah: Erlbaum.
- Chang, H. H., Wong, K. H., & Li, S. Y. (2017). Applying push-pull-mooring to investigate channel switching behaviors: M-Shopping self-efficacy and switching costs as moderators. *Electronic Commerce Research and Applications, 24*, 50–67.
- Chatterjee, P., & Kumar, A. (2017). Consumer willingness to pay across retail channels. *Journal of Retailing and Consumer Services, 34*, 264–270.
- Chemero, A. (2003). An outline of a theory of affordances. *Ecological Psychology, 15*(2), 181–195.
- Chen, Y.-C. (2014). An empirical examination of factors affecting college students' proactive stickiness with a web-based english learning environment. *Computers in Human Behavior, 31*, 159–171.
- Choudhury, V., & Karahanna, E. (2008). The relative advantage of electronic channels: A multidimensional view. *MIS Quarterly, 32*(1), 179–200.
- Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly, 19*(2), 189–211.
- Coursaris, C. K., & van Osch, W. (2016). A cognitive-affective model of perceived user satisfaction (CAMPUS): The complementary effects and interdependence of usability and aesthetics in IS design. *Information & Management, 53*(2), 252–264.
- Cui, X., Zhang, N., & Lowry, P. B. (2017). The agent bidding habit and use model (ABHUM) and its validation in the taobao online auction context. *Information & Management, 54*(3), 281–291.
- Dhir, A., Kaur, P., & Rajala, R. (2018). Why do young people tag photos on social networking sites? Explaining user intentions. *International Journal of Information Management, 38*(1), 117–127.
- Du, Y., Cui, M., & Su, J. (2018). Implementation processes of online and offline channel conflict management strategies in manufacturing enterprises: A resource orchestration perspective. *International Journal of Information Management, 39*, 136–145.
- Duan, Y., Edwards, J. S., & Dwivedi, Y. K. (2019). Artificial intelligence for decision making in the era of big data – evolution, challenges and research agenda. *International Journal of Information Management, 48*, 63–71.
- Fedorikhin, A., Park, C. W., & Thomson, M. (2008). Beyond fit and attitude: The effect of emotional attachment on consumer responses to brand extensions. *Journal of Consumer Psychology, 18*(4), 281–291.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50.
- Frishammar, J., Cenamor, J., Cavalli-Björkman, H., Hernell, E., & Carlsson, J. (2018). Digital strategies for two-sided markets: A case study of shopping malls. *Decision Support Systems, 108*, 34–44.
- Gao, F., & Su, X. (2017). Omnichannel retail operations with buy-online-and-pick-up-in-store. *Management Science, 63*(8), 2478–2492.
- Germann, F., Lilien, G. L., Fiedler, L., & Kraus, M. (2014). Do retailers benefit from deploying customer analytics? *Journal of Retailing, 90*(4), 587–593.
- Gibson, J. J. (1986). *The ecological approach to visual perception*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Gu, Z., & Tayi, G. K. (2017). Consumer pseudo-showrooming and omni-channel placement strategies. *MIS Quarterly, 41*(2), 583–606.
- Hair, J. F., Sarstedt, M., & Ringle, C. M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice, 19*(2), 139–152.
- Hofstede, G. (1980). *Culture's consequence: International differences in work-related values*. London: Sage.
- Hossain, T. M. T., Akter, S., Kattiyapornpong, U., & Dwivedi, Y. (2020). Reconceptualizing integration quality dynamics for omnichannel marketing. *Industrial Marketing Management*. <https://doi.org/10.1016/j.indmarman.2019.12.006>.
- Hossain, T. M. T., Akter, S., Kattiyapornpong, U., & Dwivedi, Y. K. (2019). Multichannel integration quality: A systematic review and agenda for future research. *Journal of*

- Retailing and Consumer Services*, 49, 154–163.
- Juaneda-Ayensa, E., Mosquera, A., & Murrillo, Y. S. (2016). Omnichannel customer behavior: Key drivers of technology acceptance and use and their effects on purchase intention. *Frontiers in Psychology*, 7, 1–11.
- Kamboj, S., Sarmah, B., Gupta, S., & Dwivedi, Y. (2018). Examining branding Co-creation in brand communities on social media: Applying the paradigm of stimulus-organism-response. *International Journal of Information Management*, 39, 169–185.
- Karahanna, E., Agarwal, R., & Angst, C. M. (2006). Reconceptualizing compatibility beliefs in technology acceptance research. *MIS Quarterly*, 30(4), 781–804.
- Kenrick, D. T., & Funder, D. C. (1988). Profiting from controversy: Lessons from the person-situation debate. *American Psychologist*, 43, 23–34.
- Kwahk, K.-Y., Ahn, H., & Ryu, Y. U. (2018). Understanding mandatory IS use behavior: How outcome expectations affect conative IS use. *International Journal of Information Management*, 38(1), 64–76.
- Lee, T., Lee, B.-K., & Lee-Geiller, S. (2020). The effects of information literacy on trust in government websites: Evidence from an online experiment. *International Journal of Information Management*, 52 p 102098.
- Legner, C., Eymann, T., Hess, T., Matt, C., Böhmman, T., Drews, P., ... Ahlemann, F. (2017). Digitalization: Opportunity and challenge for the business and information systems engineering community. *Business & Information Systems Engineering*, 59(4), 301–308.
- Li, Y., Liu, H., Lee, M., & Huang, Q. (2020). Information privacy concern and deception in online retailing: The moderating effect of online-offline information integration. *Internet Research*, 30(2), 511–537.
- Li, Y., Liu, H., Lim, E. T. K., Goh, J. M., Yang, F., & Lee, M. K. O. (2018). Customer's reaction to cross-channel integration in omnichannel retailing: The mediating roles of retailer uncertainty, identity attractiveness, and switching costs. *Decision Support Systems*, 109, 50–60.
- Liang, H., Saraf, N., Hu, Q., & Xue, Y. (2007). Assimilation of enterprise systems: The effect of institutional pressures and the mediating role of top management. *MIS Quarterly*, 31(1), 59–87.
- Limayem, M., Hirt, S. G., & Cheung, C. M. K. (2007). How habit limits the predictive power of intention: The case of information systems continuance. *MIS Quarterly*, 31(4), 705–737.
- Lin, H.-C., & Chang, C.-M. (2018). What motivates health information exchange in social media? The roles of the social cognitive theory and perceived interactivity. *Information & Management*, 55(6), 771–780.
- Liu, A., Li, Y., & Ye, H. (2018). Digital fluency and social media use: An empirical study of WeChat use. *Proceedings of the 51st Hawaii International Conference on System Sciences*, 503–512.
- Lou, J. (2014). *Towards a deeper understanding of mobile technology usage behavior: An attachment perspective*. City University of Hong Kong.
- Madaleno, R., Wilson, H., & Palmer, R. (2007). Determinants of customer satisfaction in a multi-channel B2B environment. *Total Quality Management & Business Excellence*, 18(8), 915–925.
- Majchrzak, A., & Markus, L. (2012). *Technology affordances and constraint theory of MIS*. Thousand Oaks, CA: Sage.
- Markus, M. L., & Silver, M. S. (2008). A foundation for the study of IT effects: A new look at DeSanctis and Poole's concepts of structural features and spirit. *Journal of the Association for Information Systems*, 9(10), 609–632.
- McGee, T. (2018). *The state of omnichannel marketing*. Target Marketing <https://www.targetmarketingmag.com/longform/the-state-of-omnichannel-marketing/>.
- Mirkovski, K., Yin, C., Liu, L., & Yang, J. (2019). Exploring the contingent effect of community equity on users' intention to share information. *Information Systems Frontiers*, 21(4), 845–860.
- Mischel, W. (1973). Toward a cognitive social learning: Reconceptualization of personality. *Psychological Review*, 80, 252–283.
- Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital innovation management: Reinventing innovation management research in a digital world. *MIS Quarterly*, 41(1), 223–238.
- Newman, A., Tse, H. H. M., Schwarz, G., & Nielsen, I. (2018). The effects of employees' creative self-efficacy on innovative behavior: The role of entrepreneurial leadership. *Journal of Business Research*, 89, 1–9.
- Ono, A., Nakamura, A., Okuno, A., & Sumikawa, M. (2012). Consumer motivations in browsing online stores with mobile devices. *International Journal of Electronic Commerce*, 16(4), 153–177.
- Park, S., & Lee, D. (2017). An empirical study on consumer online shopping channel choice behavior in omni-channel environment. *Telematics and Informatics*, 34(8), 1398–1407.
- Park, C. W., MacInnis, D. J., Priester, J., Eisingerich, A. B., & Iacobucci, D. (2010). Brand attachment and brand attitude strength: Conceptual and empirical differentiation of two critical brand equity drivers. *Journal of Marketing*, 74(6), 1–17.
- Peng, Z. Y., Sun, Y. Q., & Guo, X. T. (2018). Antecedents of employees' extended use of enterprise systems: An integrative view of person, environment, and technology. *International Journal of Information Management*, 39, 104–120.
- Petter, S., Straub, D., & Rai, A. (2007). Specifying formative constructs in information systems research. *MIS Quarterly*, 31(4), 623–656.
- Piotrowicz, W., & Cuthbertson, R. (2014). Introduction to the special issue information technology in retail: Toward omnichannel retailing. *International Journal of Electronic Commerce*, 18(4), 5–16.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.
- Rigby, D. K. (2014). Digital-physical mashups. *Harvard Business Review*, 92(9), 84–92.
- Rodríguez-Torrico, P., José, S., Cabezedo, R., & San-Martín, S. (2017). Tell me what they are like and I will tell you where they buy. An analysis of omnichannel consumer behavior. *Computers in Human Behavior*, 68, 465–471.
- Saghiri, S., Wilding, R., Mena, C., & Bourlakis, M. (2017). Toward a three-dimensional framework for omni-channel. *Journal of Business Research*, 77, 53–67.
- Shareef, M. A., Dwivedi, Y. K., Kumar, V., & Kumar, U. (2017). Content design of advertisement for consumer exposure: Mobile marketing through short messaging service. *International Journal of Information Management*, 37(4), 257–268.
- Shen, X.-L., Li, Y.-J., Sun, Y., & Wang, N. (2018). Channel integration quality, perceived fluency and omnichannel service usage: The moderating roles of internal and external usage experience. *Decision Support Systems*, 109, 61–73.
- Shi, S., Wang, Y., Chen, X., & Zhang, Q. (2020). Conceptualization of omnichannel customer experience and its impact on shopping intention: A mixed-method approach. *International Journal of Information Management*, 50, 325–336.
- Singh, S., & Swait, J. (2017). Channels for search and purchase: Does mobile internet matter? *Journal of Retailing and Consumer Services*, 39, 123–134.
- Soror, A. A., Hammer, B. I., Steelman, Z. R., Davis, F. D., & Limayem, M. M. (2015). Good habits gone bad: Explaining negative consequences associated with the use of mobile phones from a dual-systems perspective. *Information Systems Journal*, 25(4), 403–427.
- Sousa, R., & Voss, C. A. (2006). Service quality in multichannel services employing virtual channels. *Journal of Service Research*, 8(4), 356–371.
- Tett, R. P., & Guterman, H. A. (2000). Situation trait relevance, trait expression, and cross-situational consistency: Testing a principle of trait activation. *Journal of Research in Personality*, 34(4), 397–423.
- Thorngate, W. (1976). Must we always think before we act? *Personality and Social Psychology Bulletin*, 2(1), 31–35.
- Tilson, D., Lyytinen, K., & Sørensen, C. (2010). Digital infrastructures: The missing IS research agenda. *Information Systems Research*, 21(4), 748–759.
- Turel, O. (2015). Quitting the use of a habituated hedonic information system: A theoretical model and empirical examination of facebook users. *European Journal of Information Systems*, 24(4), 431–446.
- Verhoef, P. C., Kannan, P. K., & Inman, J. J. (2015). From multi-channel retailing to omnichannel retailing introduction to the special issue on multi-channel retailing. *Journal of Retailing*, 91(2), 174–181.
- Verplanken, B., Aarts, H., & Van Knippenberg, A. (1997). Habit, information acquisition, and the process of making travel mode choices. *European Journal of Social Psychology*, 27(5), 539–560.
- von Briel, F. (2018). The future of omnichannel retail: A four-stage Delphi study. *Technological Forecasting and Social Change*, 132, 217–229.
- Wang, C., Harris, J., & Patterson, P. (2013). The roles of habit, self-efficacy, and satisfaction in driving continued use of self-service technologies. *Journal of Service Research*, 16(3), 400–414.
- Wang, R. J. H., Malthouse, E. C., & Krishnamurthi, L. (2015). On the go: How mobile shopping affects customer purchase behavior. *Journal of Retailing*, 91(2), 217–234.
- Williams, D. R., & Vaske, J. J. (2003). The measurement of place attachment: Validity and generalizability of a psychometric approach. *Forest Science*, 49(6), 830–840.
- Wixom, B. H., & Todd, P. A. (2005). A theoretical integration of user satisfaction and technology acceptance. *Information Systems Research*, 16(1), 85–102.
- Wu, J.-F., & Chang, Y. P. (2016). Multichannel integration quality, online perceived value and online purchase intention: A perspective of land-based retailers. *Internet Research*, 26(5), 1228–1248.
- Yang, Y., Gong, Y., Land, L. P. W., & Chesney, T. (2020). Understanding the effects of physical experience and information integration on consumer use of online to offline commerce. *International Journal of Information Management*, 51 p 102046.
- Yoo, Y., Henfridsson, O., & Lyytinen, K. (2010). Research commentary—The new organizing logic of digital innovation: An agenda for information systems research. *Information Systems Research*, 21(4), 724–735.
- Yuksel, A., Yuksel, F., & Bilim, Y. (2010). Destination attachment: Effects on customer satisfaction and cognitive, affective and conative loyalty. *Tourism Management*, 31(2), 274–284.
- Yurova, Y., Rippé, C. B., Weisfeld-Spolter, S., Sussan, F., & Arndt, A. (2017). Not all adaptive selling to omni-consumers is influential: The moderating effect of product type. *Journal of Retailing and Consumer Services*, 34, 271–277.
- Zhang, M., Ren, C., Wang, G. A., & He, Z. (2018). The impact of channel integration on consumer responses in omni-channel retailing: The mediating effect of consumer empowerment. *Electronic Commerce Research and Applications*, 28, 181–193.

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