

Contents lists available at ScienceDirect

Journal of Business Research



journal homepage: www.elsevier.com/locate/jbusres

Enhancing brand equity of branded mobile apps via motivations: A service-dominant logic perspective



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ARTICLE INFO	A B S T R A C T
Keywords: Branded app Value in use Brand equity Service-dominant logic	Mobile devices have become a dominant feature of modern life, and increasingly organizations are employing dedicated mobile phone applications to maintain communication with consumers. Despite the increasing adoption of these branded apps among firms, however, a comprehensive framework explaining how these branded apps create value for both consumers and firms has yet to emerge in the marketing literature. Drawing from motivational and service-dominant logic theories, this paper develops a model of the effects of motivational sources on value in use, which translates into higher brand equity. Analysis results from 323 branded app sers show that five hypotheses capturing the main effects are supported. However, four hypotheses pertaining to moderation effects are not supported. Specifically, utilitarian motivation and hedonic motivation have an impact on value in use, which in turn leads to enhanced perceived quality, brand loyalty, and brand awareness and associations—the three components of brand equity.

1. Introduction

Building brand equity with consumers is vital for firm success but the path along which consumers direct their attention has changed rapidly in the past 15 years. When Steve Jobs introduced the first iPhone in 2007, he called it a "revolutionary" breakthrough (Emba, 2017). Indeed, a mere decade later, more than 77% of all Americans own smartphones-a number that jumps above 90% among those between the ages of 18 and 49 (Pew Research Center, 2018). The revolution was not in the product itself, however, but in how these smartphones have changed the habits and behaviors of their owners. The average smartphone user has more than 75 daily engagement sessions with his/her smartphone, devoting more than two hours of attention to the device every day (Winnick, 2016). Given the vast amount of attention consumers are directing toward their smartphones, it comes as little surprise that most major retailers now have dedicated mobile applications, and over two-thirds of consumers have downloaded at least one retailer application to their smartphones (Synchrony Digital Study, 2018). These branded apps—smartphone applications that "display a brand identity, often via the name of the app and the appearance of a brand logo or icon, throughout the user experience" (Bellman, Potter, Treleaven-Hassard, Robinson, & Varan, 2011, p. 191)-have captured the attention not only of businesses and consumers but also of scholars, with researchers investigating their impact on firms' bottom lines (e.g., Van Noort & Van Reijmersdal, 2019), their effects on consumer engagement (e.g., Gill, Sridhar, & Grewal, 2017), their ability to foster two-way communication between firms and consumers (e.g., Hamilton, Kaltcheva, & Rohm, 2016), and their potential to increase brand loyalty (e.g., Wang, Kim, & Malthouse, 2016). Yet, despite these advances, a comprehensive model of how branded app usage affects brand equity has yet to emerge.

Given the inherent difficulties in assessing how much value branded apps contribute to the firm, as consumers often use the app for informational purposes but ultimately make their purchases through another channel (e.g., De Haan, Kannan, Verhoef, & Wisel, 2018; Verhoef, Neslin, & Vroomen, 2007), explaining what motivations drive consumers' use of branded apps, how users derive value from that usage, and how it affects brand equity is essential to understanding the worth of branded apps. That is, while prior scholarship demonstrates how these apps are useful for inferring product demand (e.g., Garg & Telang, 2013), serving as an informational resource for consumers (e.g., Hilton, Hughes, Little, & Marandi, 2013), and building firm value (e.g., Boyd, Kannan, & Slotegraaf, 2019), research also demonstrates that mobile app-based advertising can actually decrease demand for downloadable applications (e.g., Ghose & Han, 2014), and that a host of factors can

https://doi.org/10.1016/j.jbusres.2020.12.029

Received 19 December 2019; Received in revised form 7 December 2020; Accepted 11 December 2020 Available online 25 December 2020 0148-2963/© 2020 Elsevier Inc. All rights reserved.

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decrease consumers' willingness to use branded apps (e.g., Newman, Wachter, & White, 2018). As such, a thorough, theory-driven model of how consumers derive value from branded apps, what motivates consumers to use those apps, and how they ultimately affect brand equity is necessary to advance marketing scholarship and enhance the field's understanding of how consumers relate to branded mobile phone applications.

In this research, we integrate tenets of self-construal theory into the service-dominant (S-D) logic perspective to propose and test a model of how brand equity is influenced by the perceived value in use of branded apps, and how this value is affected by consumer motivations as well as the features of the app. S-D logic is an ideal framework for explaining this phenomenon for several reasons. S-D logic asserts a service-based model for the economic value of consumer interactions founded, partly, on the notions that the customer is always a co-creator and the ultimate arbiter of value (Lusch & Vargo, 2014). That is, the value to the consumer is created by the interaction of the consumer with the firm and its products insofar as the resources provided satisfy the needs of the consumer. Consequently, branded apps can fill this economic need by providing useful information that informs brand equity as the user interacts with the app to create a personalized, relationship-oriented experience with the app and with the brand. However, self-construal theory-which addresses the ways in which people see themselves as linked (or not linked) with other people and entities-suggests that consumers' perceptions of the value in use of branded apps will be different based on whether or not they perceive themselves as independent or interdependent. Since the value of the app experience is cocreated by the consumer, differences in self-construals should differentially impact user motivations for utilizing the app and the consequent value derived from it. Put simply, consumers co-create the value in use of branded apps through this service-based relationship, and the value of the relationship is informed by the user's experience with the service, which itself is defined by personal motivations and self-construals.

Drawing from this perspective, we answer calls for a more comprehensive understanding of the value of branded apps (e.g., Ström, Vendel, & Bredican, 2014) and offer a comprehensive model of how the value in use of branded apps influences brand equity. We predict that value in use is influenced by three primary forms of motivation for app use-—utilitarian, hedonic, and social motivations—and that the levels of impact of these different types of motivation are influenced by selfconstruals as well as by features of the branded app itself. We then predict that value in use influences brand equity in the form of perceived quality, brand loyalty, and brand awareness. In so doing, we not only advance the field's understanding of how branded apps are affecting firms' interactions with consumers, we offer and test a comprehensive, theory-driven model of consumer's experience with branded apps. In the pages that follow, we review the relevant literature and expand upon the theoretical rationale for our model.

2. Literature review and hypothesis development

2.1. Branded mobile applications

Since the debut of Apple's "App Store" and Google's Android Market for apps, both launched in 2008, scholars have taken notice of the advertising potential of these mobile apps for companies, though much of the early work on branded apps integrated the app alongside other virtual encounters, such as user interactions with a company webpage, advertising embedded in automotive GPS devices, or the use of noninteractive "push message" advertisements on mobile phones (e.g., Calder, Malthouse, & Schaedel, 2009; Cheng, Blankson, Wang, & Chen, 2009; Neslin & Shankar, 2009; Shankar & Balasubramanian, 2009; Shankar, Balasubramanian, Venkatesh, Hofacker, & Naik, 2010; Xu, Oh, & Teo, 2009). Much of the work to date focuses on the potential benefits of branded apps (a summary of relevant research into branded apps appears in Table 1). Scholarship so far has focused on information search

Table 1
Mobile app

Author	Apps Used	Study Method	Key Findings
Ahmed, Beard, & Yoon, 2016	Retail fictitious brand's app	Survey (n = 277)	A new model is developed based on the traditional advertising model - dual mediation hypothesis (DMH) in the context of mobile apps. The effects of antecedents (mobile apps cognition, brand cognition) on outcomes (intention to continue apps, and intention to purchase) are
Alnawas & Aburub, 2016	Self-selected branded apps	Survey (n = 358)	confirmed. Customer satisfaction is driven by benefits (hedonic, personal integrative, social integrative, and learning) from mobile apps while purchase intention could be enhanced as a result of learning benefits and hedonic benefits
Bellman et al., 2011	Branded apps (informational vs experiential)	Experiment (n1 = 54, n2 = 219)	Information apps enhance purchase intention because they focus on the app users and create more personal connections. Experiential apps are less influential because they focus on the phone.
Boyd et al., 2019	Branded apps whose launch was announced in major newspapers between 2008 and 2014	Archival (n = 455)	Branded apps generate favorable stock market reactions and increase firm value, but the features of the app influence how much value is created, with apps that foster peer-to- peer communications generating higher value.
Fang, 2017a	Service branded apps	Survey (n = 637)	Continuance intention is more influenced by engagement path while repurchase intention is equally impacted by engagement and utilitarian path. Self- construal serves as a moderating role in each path
Fang, 2017b	Service branded apps	Survey (n = 631)	Task service fit and perceived usefulness are key drivers of the branded app use. Psychological barrier partially mediates the impact of task service fit and purchase
Fang, 2019	Service branded apps	Survey (n = 634)	Built on the affordance theory and (continued on next page)

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Author	Apps Used	Study Method	Key Findings	Author	Apps Used	Study Method	Key Findings	
			service dominant logic, the paper confirms that five branded app affordances including visibility, persistent, interactivity, association, and selectivity are related to value in use which in turn has indirect or direct impact on lowalty, outcomes	Newman et al., 2018	Retailers' mobile apps	Survey (n1 = 277, n2 = 212)	activity. Therefore, customer experience becomes negative if customers spend longer than necessary using the app. Consumers are more likely to use branded apps when they are easy to use. Frequency of app usage strengthens the connection to the	
Hsiao, Chang, & Tang, 2016	Social apps	Survey (n = 378)	through brand warmth and brand competence. Hedonic motivation, tight connection with others and wards	Peng et al., 2014	Banking apps	Survey (n = 245)	retailer, and increases intentions to recommend the app. Perceived value, brand attachment, end identification ere	
			satisfaction are antecedents of continued usage of				and identification are all key drivers of intention to use branded apps.	
			social apps. Satisfaction and habit fully mediate the relationship between perceived usefulness and continuance intention.	Stocchi et al., 2018	10 most-used branded apps in the UK	Survey (n = 253)	By improving benefits of branded apps, companies are likely to result in higher app revenue and more word of mouth sharing, which lead to	
Kim & Ah Yu, Self-selected 2016 branded apps	Self-selected branded apps	Survey (n = 223)	Branded app use increases users' holistic brand				increased values for customers and app makers.	
			experiences (affective, cognitive, behavioral, and relational dimensions). Greater use of branded apps also positively	Tarute, Nikou, & Gatautis, 2017	Self-selected branded apps	Survey (n = 214)	User's intention to continuous usage of branded apps are driven by design solution, information quality and consume engagement	
			moderates the impact of brand experience and brand loyalty.	Tseng & Lee, 2018	M-commerce branded apps	Survey (n = 303)	Built upon the dual- route perspective, th study supports branc	
Kim et al., 2013	Top 100 global brand apps	Archival (n = 106)	An investigation into the nature and content of branded apps maintained by				app loyalty are affected through both affective and utilitarian paths.	
			global companies reveals a preference for attractive engagement attributes (e.g., vividness,	Tran, Mai, & Taylor (the current paper)	Branded apps (informational vs. experiential)	Survey (n = 323)	Utilitarian and hedonic motivations impact value in use, which in turn enhances brand equity as comprised	
			customization) that is frequently paired with entertainment features.				of perceived quality, brand loyalty, and brand associations and awareness.	
Mahatanankoon et al., 2005	Consumer-based mobile applications	Archival (n = 44)	Consumers have different goals when using mobile apps, such as information search. How well the app matches the consumer's goals, and how effective the app is at delivering (or facilitating) content, informs user	Urban & Sultan, 2015	An insurance app and a banking app	Survey (n1 = 550, n2 = 500)	"Benevolent apps" that are less focused on generating sales and more focused on providing consumers with useful information enhance two desired outcomes: user's preference of and trust in the company	
McLean et al., 2018	Retailers' mobile apps	Survey (n = 1024)	perceptions of the app. One of the concerns that customers have about a commercial mobile app is how long it takes to complete any	Van Noort & Van Reijmersdal, 2019	Car branded apps (informational vs experiential)	Experiment (n = 122)	Types of apps have different impacts. While informational apps increase elaboration which results in cognitive brand responses, entertainment apps	

(continued on next page)

Table 1 (continued)

Author	Apps Used	Study Method	Key Findings
			enhance enjoyment which lead to affective brand responses.
Verkijika & De Wet, 2019	A student time management app	Survey (n = 100)	User's satisfaction and word of mouth sharing are driven by simplicity and emotion.
Xu, Peak, & Prybutok, 2015	Mobile apps	Survey (n = 347)	User's continuance intention, satisfaction, and hedonic benefits of brand apps result in intention to recommend which in turn lead to app recommendation behaviors.

for consumers (Mahatanankoon, Wen, & Lim, 2005), customization to user tastes (e.g., Liu, 2003; Liu & Shrum, 2002), and two-way communications between consumers and firms (Kim, Lin, & Sung, 2013), and particularly on the benefits to firms of these repeated interactions (e.g., Urban & Sultan, 2015; Xu, Forman, Kim, & Van Ittersum, 2014), including increased engagement in the B-to-B context (Gill et al., 2017) and increased recognition of brands following branded app use (Van Noort & Van Reijmersdal, 2019). Likewise, scholars have determined a number of design and usage features that increase demand for branded apps, and enhance user experience with those apps (e.g., Garg & Telang, 2013; Ghose & Han, 2014), including scholarship revealing that the extent to which the app is designed to be informational or experiential (e.g., advertising based around playing a game) can influence future purchase intentions (e.g., Bellman et al., 2011).

As this nascent but growing body of research has often been exploratory in nature, however, theoretically-driven explanations of what motivates consumers to use branded apps, and how that usage subsequently drives cognitive outcomes such as brand equity, have been scarce. Van Noort and Van Reijmersdal (2019), for instance, adopted a transportation theory (Green & Brock, 2000) lens to argue that using entertaining media, such as an app-based game, leads to enjoyment but leaves a lower level of cognitive resources available after its use, negatively affecting the user's readiness and ability to absorb information from the advertising message itself. Consequently, using an app for entertainment rather than informational purposes may influence affective brand responses but not brand memory nor brand beliefs. This is generally consistent with research adopting a media gratification theory lens (Atkin, 1973), which suggests that consumers typically are motivated either by utilitarian or hedonic drives for engaging with media-a notion supported in research investigating consumer use of mobile services broadly but not branded apps specifically (e.g., mobile banking data; Kim & Hwang, 2006; Laukkanen, 2007). While these are important advancements in our understanding of branded apps, more work is needed to develop a more comprehensive view of the consumer experience with branded apps. To advance this understanding, we next utilize the service-dominant logic to explain consumer motivations to use branded apps, and how those motivations affect the value in use.

2.2. Service-dominant logic

Service-Dominant Logic (S-D logic; Vargo & Lusch, 2004) is a comprehensive framework for understanding value co-creation that stands in relief to the classic value in *exchange* viewpoint by emphasizing that the role of mutual exchange between the consumer and the firm in creating customer value is the "common denominator" (Vargo & Lusch,

2004, p. 334) of the exchange process. That is, the interaction of the product with the service experience as mutually created by the customer and the firm is the ultimate source of consumer value, not the mere exchange of goods. For example, the value consumers derive from mobile phones, as discussed in the introduction, does not come from the mere purchase of the phone (i.e., value in exchange) but from their repeated interaction with the product, its features, and the company's services (i.e., value in use). Consequently, according to S-D logic, firms must strive to maximize consumer involvement by emphasizing customization to better fit his or her needs and maintain an exchange relationship. Subsequent research has expanded and clarified these salient issues associated with S-D logic (e.g., Vargo & Lusch, 2008) as it became an increasingly important theory in marketing, whether the purpose is to support consumers in the process of specialization and value creation (Lusch & Vargo, 2014) or in service innovation (Lusch & Nambisan, 2015). S-D logic is always informed by four key tenets (or axioms): service is the fundamental basis of exchange, the customer is always a value co-creator, all involved parties are resource integrators, and value is always determined by the beneficiary (Lusch & Vargo, 2014, see p. 54). Not surprisingly, given the contemporary emphasis on customization and co-creation of value in marketing research, S-D logic has become a primary perspective for understanding and informing how marketing managers and consumers seek and use information in the omni-channel environment (Dahl, Milne, & Peltier, 2019).

Drawing from the core axioms of S-D logic, scholars have derived an integrated framework of service innovation that includes three elements: service ecosystems, service platforms, and value co-creation (Lusch & Nambisan, 2015). In S-D logic, value co-creation refers to the "comparative appreciation of reciprocal skills or services that are exchanged to obtain utility," essentially meaning "value in use" (Vargo & Lusch, 2004, p. 7). Quantitative measurement for value co-creation involves two primary dimensions: co-production and value in use, each with three conceptual elements (Ranjan & Read, 2016): co-production consists of knowledge, equity, and interactions; value in use includes experience, personalization, and relationship.

In the context of mobile apps, firms create branded apps as a supportive environment for information distribution and interacting with customers. Customers subsequently access brand information, connect with firms, and engage in promotional activities through these branded apps. The nature of the various roles of the customers impacts how firms customize the customer experience with the branded apps, resulting in value co-creation as resource integration since both the consumer and the firm commit resources (e.g., time, energy) to the relationship via the branded app. Consequently, and similar to Fang (2019), this study applies S-D logic to the context of branded apps. However, this study differs from Fang (2019) by examining the relationship between different types of motivations and value in use, with two possible moderators, upon brand equity. We next discuss how these motivations influence consumer's use of branded apps before discussing how these experiences affect brand equity.

2.3. Motivations

As noted earlier, motivations for seeking brand information and/or interacting with the firm's media, including branded apps, take different shapes. The most common dichotomization of consumer motivation is between utilitarian and hedonic (Babin, Darden, & Griffen, 1994). Though not inherently diametric, utilitarian motivation entails largely informational and transactional use. This includes assessing the features of a given product or service and engaging in price comparisons. The value to the consumer in these interactions lies in aiding the purchase decision and facilitating the purchase itself with a minimum of delay or interference. Hedonic motivation, on the other hand, is the excitement, entertainment, and enjoyment of the shopping experience (Hirschman & Holbrook, 1982). Consumers driven by hedonic motives enjoy the thrill of the chase, or the pursuit of a good deal, and can derive hedonic pleasure even by browsing for products or services that may fulfill future needs (Moe, 2003). In essence, utilitarian motives belie a transactional goal—the user seeks either information in exchange for time spent searching, or goods in exchange for money—while hedonic motives drive a pleasure goal, typically in the form of entertainment or enjoyment.

As value in use is co-created, it stands to reason that differences in utilitarian and hedonic motivation will have different levels of influence on value in use. The concept of value in use is an important element of value co-creation and "requires customers to learn how to use, repair, and maintain a product or service proposition" (Ranjan & Read, 2016, p. 293). Prior work has established three dimensions of value in use that produce this value co-creation, namely personalization, experience, and relationship (Fang, 2019; Ranjan & Read, 2016). In the branded app context, personalization relates to the ability to custom-tailor the app to create a unique process-either actual or perceived-for the user experience. The second dimension, experience, refers to the intrinsic customer value derived from the positive cognitive and emotional interaction with the app and the brand. The final dimension-relationship-builds on the communication and engagement between a customer and a branded app that empowers users to be active in the collaborative value creation process. Though we expect both forms of motivation to affect these dimensions and result in increased value in use, the underlying logic for why this should occur differs. For utilitarian motivation, in which the usage goal is of a transactional nature, value is derived by a satisfactory balance between the benefits and costs of using the branded app, such as time convenience or ease of transaction (e.g., Kim & Hann, 2009; Kleijnen, de Ruyter, & Wetzels, 2007). Thus, value is likely to be higher when the user experience is simple, understandable, and facilitates hassle-free search and transaction features, and may also be enhanced when app personalization allows for an experience that's tailored to the user's taste based on usage patterns or saved settings and/ or products. Value in use when motivations are hedonic, on the other hand, tend to be of a more emotionally-driven nature (Babin et al., 1994). Consequently, value manifests when the consumer utilizes the app to achieve a desirable price value (e.g., Hirschman & Holbrook, 1982; Irani & Hanzaee, 2011), triggering hedonic satisfaction, or purchasing a desirable product or service (Turel, Serenko, & Bontis, 2007).

Though scholars have yet to investigate these particular relationships in the context of branded apps, prior research does support an effect of utilitarian motivation upon intention to download and use a branded app. Specifically, Peng, Chen, and Wen (2014) predicted that utilitarian consumption values would drive intended use of branded apps under the logic that app adoption is motivated in part by the perceived utility of the app, finding support for the prediction among mobile device users in Taiwan. Alnawas and Aburub (2016) also identified utilitarian benefits as a key driver of mobile app adoption among consumers in Jordan. Likewise, hedonic motivations have played a significant role in predicting consumers' adoption of new retailing technologies in prior scholarship. Moe (2003) found that consumers with hedonic motivations were more likely to make purchases when arriving at a retail website through clickstream, and Kim et al. (2013) found that apps offering hedonic enjoyment in the form of a game or other enjoyable user experience are commonly used by product-based companies to build brand affinity. Thus, while prior work supports that utilitarian and hedonic motivations are important drivers of branded app development and usage, the influence of these motivations upon value in use remains an open question. We therefore predict that value in use is increased by both utilitarian and hedonic motivation:

H1: Utilitarian motivation is positively associated with value in use. H2: Hedonic motivation is positively associated with value in use.

A third form of user motivation also plays an important role in the mobile context—social motivation, the enjoyment of interacting and/or sharing with family and friends as part of the shopping experience (Arnold & Reynolds, 2003). Prior scholarship supports that shoppers and browsers in the online context enjoy gathering and sharing information in the same way as shoppers in physical stores, and can derive the same bonding experience (Kaufman-Scarborough & Lindquist, 2000). Likewise, consumers can derive social value in the visible use of goods or services that are commonly shared with others (Sheth, Newman, & Gross, 1991). Consequently, users can derive social value through shared experience with branded apps when those apps foster relational benefits to the consumer or build individual esteem through social value in the shopping experience (Rintamaki, Kanto, Kuusela, & Spence, 2006). As such, we predict that value in use will be higher when customers are motivated to use branded apps for these social benefits:

H3: Social motivation is positively associated with value in use.

2.4. Brand equity

While the consumer is the ultimate arbiter of value, firms that are successful in co-creating value with the consumer through branded apps should see increases in brand equity among app users. Brand equity-the value premium achieved when a firm has a well-known brand as compared to a generic equivalent-is vital because firms invest money and time to build the equity of their brands in the hopes of building stronger customer relationships (Keller, 1993). Indeed, firms with higher brand equity enjoy higher market share and price premiums (e.g., Ailawadi, Lehmann, & Neslin, 2003; Srinivasan, Park, & Chang, 2005) and generate better returns for the company and its investors (e.g., Aaker & Jacobson, 1994). Consequently, there is little doubt that higher levels of brand equity yield many positive benefits for brand sales (e.g., Netemeyer et al., 2014). Yet, not all forms of brand equity are equal from the S-D logic perspective. Sales-based brand equity-a more classical measure derived from the value in exchange perspective-emphasizes and prioritizes firm performance, while customer-based brand equity focuses on what customers think and feel about the brand (Datta, Ailawadi, & van Heerde, 2017). Given the central role of value co-creation between the consumer and the firm, this latter form of brand equity takes on larger importance in the digital age, and is of greater relevance when considering the role of branded apps in influencing value in use.

Customer-based brand equity is a multidimensional concept (Aaker, 2009; Datta et al., 2017; Keller, 1993) observable on three dimensions of brand equity: perceived quality, brand loyalty, and brand associations (Yoo, Donthu, & Lee, 2000). Perceived quality refers to customer's evaluation about a product's overall superiority; it signals the likelihood of the quality, functionality, and reliability of the products of an associated brand (Yoo et al., 2000). With respect to branded apps, a customer may first experience the app and its personalization, then develop use-benefits from repeated interactions with the app such as a greater awareness of the brand's features and service, ultimately presenting the firm with an opportunity to showcase the value of its products or services. As the consumer co-creates value in the experience by providing the firm with useful information about his or her desires-which can be assessed through the user's settings, app-usage history (e.g., which products the customer views on the app), and products that the user likes, saves, or adds to a shopping cart or wish list, allowing the firm to tailor the app experience to the specific user-we expect that the consumer's perception of the brand's quality will increase. Ding and Tseng (2015) provide evidence that brand experiences such as these do indeed have a positive relationship with perceived quality: high value in use-as characterized by positive experiences, strong personalization, and relationship development with branded apps-increases a customer's evaluation of a brand's overall superiority. It stands to reason, then, that the potential of a branded app to lead to greater levels of involvement, stronger networks, and higher engagement-achieved through consumer's positive value in use from a firm's branded app-is likely to enhance the perception that the brand is of higher quality. In short, if a customer achieves a high value in use with a branded app, the

perceived quality should be greater:

H4: Value in use is positively associated with perceived quality.

No less important is the second subdimension of brand equity, brand loyalty. Higher brand loyalty means a customer will frequently turn to that brand as his or her first choice. Marketers are increasingly employing branded apps as a new communication tool to promote loyalty (e.g., Hew, Lee, Ooi, & Lin, 2016; Kim & Ah Yu, 2016) because internet users rely heavily on mobile apps for product information, guidance, and promotions (Hsu & Lin, 2015). While branded apps can elevate customer excitement about a brand, they also generate a high level of expectation and require significant experience, personalization, and relationship (i.e., value in use; McLean, Al-Nabhani, & Wilson, 2018). A high level of value in use enhances the customer user experience and engagement (Macdonald, Wilson, Martinez, & Toossi, 2011) and thus enhances brand loyalty when firms provide superior features and benefits through the use of branded apps. Put differently, branded apps can fill consumer's need for information about a company's products and services; this enhances the customer's value in use as the user co-creates the experience and develops a stronger awareness of (and, potentially, relationship with) the brand through personalizing their app experience. We predict that this investment of time and energy into the relationship by both the user and the firm through creating value in use also increases brand loyalty (e.g., Fang, 2019). We therefore expect a positive relationship between value in use and brand loyalty:

H5: Value in use is positively associated with brand loyalty.

Brand awareness with brand associations—the third dimension of brand equity—is conceptualized as the characteristics and features customers associate with a brand and the resultant brand image they form (Yoo et al., 2000). Consequently, this dimension includes brand awareness in addition to characteristics and logos of the brand. Firms often foster brand awareness with brand associations to transfer the positive association of the brand to a newly-formed branded app. Extant literature documents that brand experience has a positive relationship with brand awareness and brand associations (Ding & Tseng, 2015): a positive experience, a high level of personalization, and a strong relationship can reduce unfamiliarity of the brand and increase customer confidence in brand association. Thus, a branded app with high value in use is more likely to increase customer familiarity with the brand, its features and characteristics, and its imagery, including symbols and logos. We therefore predict:

H6: Value in use is positively associated with brand awareness and association.

2.5. Branded app features

Apps can be designed in different ways with different features and those differences may affect the user experience and the relationships among the constructs under study. As mentioned above, mobile applications typically manifest in two forms: informational or experiential (Bellman et al., 2011; Calder et al., 2009; Malthouse, Calder, & Tamhane, 2007). Informational apps are designed to provide data to users on product or service features, price, and other purchase-relevant information, whereas experiential apps are focused more on providing an intrinsically enjoyable experience, frequently through games or a narrative element to the user experience (Bellman et al., 2011). As informational media is focused on elaboration of the content (Andrews & Shimp, 1990; Van Reijmersdal, Smit, & Neijens, 2010), informational branded apps help consumers achieve their utilitarian goals and make decisions, satisfying the transactional drive to acquire information at a limited time expense, or make purchases with limited irritation. It stands to reason, therefore, that users who are motivated to use branded apps

for utilitarian reasons will experience a higher value in use from the app when it is designed to be informational.

Apps that are more experiential, on the other hand, emphasize entertainment and enjoyment (Bellman et al., 2011). These can include in-app games, chat rooms in which users can interact with the brand with other users, and social media features such as sharing items or purchase information directly to popular social media platforms (Kim et al., 2013). As these features enhance the social value users derive from interacting with an application, we expect that consumers who utilize branded apps with social motivations will experience higher levels of value in use when those branded apps are more experiential in nature. Therefore:

Branded app type moderates the effect of motivations on value in use. More specifically, (H7) the effect of utilitarian motivation on value in use is stronger with informational apps, while (H8) the effect of social motivation on value in use is stronger with experiential apps.

2.6. Moderating role of self-construal

While the nature of the app can affect these relationships, personal differences among app users can likewise lead to different outcomes, including how consumers perceive themselves in relation to other patrons of the brand. Self-construal theory addresses this issue by explaining how people perceive their linkages with others. There are two divergent construals: independent and interdependent selfconstruals (Markus & Kitayama, 1991). Customers with an independent self-construal demonstrate organized behavior and meaningful references to their own internal thoughts, feelings, and actions. That is, they see themselves as unique and generally less dependent upon others, and their actions tend to be guided more by their own internal motivations and drives. Conversely, interdependent self-construal involves viewing oneself as part of an encompassing social network with connectedness among humans or groups, and individuals who adhere to this perspective tend to value maintaining this interdependence with other individuals. This view derives from a belief in the similarities between individuals and generally seeing themselves as being less differentiated from others in their own mind. From this perspective, people are more motivated to "fit in" with relevant others, and to fulfil and create social obligations to maintain their interconnectedness.

Prior scholarship has linked self-construals to impulsive consumption (Zhang & Shrum, 2008), coupon proneness (Lalwani & Wang, 2018), consumer responses to goal framing in social marketing (Lee & Pounders, 2019), moral judgements concerning fashion counterfeits (Kim & Johnson, 2014), and unauthorized music downloading and sharing (Yang, Wang, & Mourali, 2015). Our conceptual model proposes that utilitarian, hedonic, and social motivations are primary drivers of value in use of branded apps, but customers often vary in these drives based on their self-construal levels. The two self-construal levels (i.e., independent vs. interdependent) may therefore alter the relationship between motivations and value in use.

Customers with independent self-construals view themselves as different from others—they are unique in their own eyes. Aaker and Lee (2001) argue that these individuals tend to be oriented toward a promotion goal such as "I seek pleasures" in information processing. When customers have an independent self-construal, intrinsic goal framing leads to more desirable goal-related outcomes (Lee & Pounders, 2019). We assert that these independent self-construals interact with hedonic motivations to strengthen value in use. Logically, these users are motivated by "the thrill of the chase" in shopping and information acquisition pursuits and are more likely to experience positive emotions when the branded app provides the user with the desired end result, be it information to use in future purchasing decisions, creating shopping lists, or just acquiring information about products and services. This effect is likely to be compounded when the individual also sees his or herself as differentiated from others and independent because it simultaneously satisfies the customer's intrinsic self-promotional goals by allowing the user to contribute to value co-creation in a material way as they use the branded app to tailor their shopping experience to their own desires, or use the information and search features to acquire the information they desire. Put differently, a customer with an independent self-construal values self-reliance and uniqueness; when the customer uses a branded app frequently and enjoys the user experience, he or she is more likely to perceive a higher level of value in use. We hypothesize, therefore, that independent self-construal is likely to help make the relationship between hedonic motivation and value in use stronger.

On the other hand, customers with interdependent self-construals view themselves as defined by others and their relationships with other people. Since customers with interdependent self-construals prioritize social groups and emphasize interpersonal relationships (Lee & Pounders, 2019; Markus & Kitayama, 1991), they often build relationships with other users, company employees, and brand ambassadors through branded apps—an especially important outcome for customers with high social motivations. Interdependent self-construals reduce customers' risk of switching to other branded apps because they value the social cohesion among the app users, demonstrate higher conformity to social norms, and show greater patience if an experience is less than totally satisfactory at first (Lalwani & Wang, 2018; Markus & Kitayama, 1991). Consequently, interdependent self-construals paired with high social motivations should increase the importance of the social group that emerges around the brand, increase switching costs for consumers because of their feelings of social connectedness, leading to greater frequency of app use and, ultimately, a higher value in use as the app fills more of the customer's social needs. Therefore, we hypothesize:

Self-construal moderates the effect of motivations on value in use. More specifically, (H9) the effect of hedonic motivation on value in use is stronger in high independent self-construal individuals than in low independent self-construal individuals, while (H10) the effect of social motivation on value in use is stronger in high interdependent self-construal individuals than in low interdependent self-construal individuals.

Our conceptual model appears in Fig. 1.

3. Methods

3.1. Sampling and procedure

We collected data via Qualtrics survey from students enrolled in undergraduate marketing classes at a large state school in the United States. Students received course credit for participation. To achieve an adequate sample size, we utilized a snowballing sampling methodology with each student being asked to send the survey to qualified subjects (i. e., adults with experience using a branded app). Out of 403 responses, 323 responses were fully completed; to remove statistical artifact related to non-completion of the survey, we used these 323 responses for our analysis. Demographically, respondents were relatively young (81.7% within 20-30 years old), and roughly equally divided between males and females (54.8% males). A majority of participants possessed a bachelor's degree or lower (84.8%). Half of the sample came from families with an income of \$60,000 or lower. At the beginning of the survey, the following definition of branded apps was provided "a branded app is a mobile application created by a company to promote its brand. Branded apps typically reflect the brand's identity and feature its values, colors, logo, visual identity and style, slogan, and more. With a branded app, companies can increase brand exposure, stay connected with customers and give customers more access to companies' business."

After completing a screening question to ensure the subject had prior experience with a branded app, participants were randomly assigned to one of two scenarios: informational apps or experiential apps. In the informational app scenario, respondents read a short description of those apps: "Informational apps provide utilitarian or functional experiences, such as online banking facilities. Their branded app content offering utilitarian-based incentives (e.g., mobile coupons), in terms of convenience and saving money, is understood as delivering utilitarian experiences" (Kim et al., 2013). These participants were then asked to think about an app that they used and provide the name of the app. Similarly, in the experiential app scenario, respondents were exposed to the following description: "Experiential apps provide intrinsic enjoyment and entertainment, due to their motivating and highly attractive action. Their branded app content offers experiential-based incentives (e.g., games, chat rooms)." These participants were then asked to think about an app that they used and provide the name of the app. Respondents then completed the questionnaire. Demographic questions appeared after the items from all



Fig. 1. Theoretical framework.

substantive study constructs.

3.2. Measurements

All variables used in this study were borrowed from existing research and adjusted to be suitable to the branded app context: utilitarian motivation, hedonic motivation (Stocchi, Michaelidou, Pourazad, & Micevski, 2018), social motivation (Wu, 2016), self-construal (Qi, Qu, & Zhou, 2014; Singelis, 1994), brand equity (Yoo et al., 2000), and value in use (Fang, 2019). For higher order constructs like utilitarian motivation, hedonic motivation, and value in use, we calculated averages of all first order constructs and used them as observed indicators in the model testing (Steenkamp, Batra, & Alden, 2003; Zeugner-Roth, Žabkar, & Diamantopoulos, 2015).

4. Results

4.1. The PLS approach

Two statistical approaches could be used to estimate a causal relationship model: a covariance-based approach (Jöreskog & Sörbom, 1982; Jöreskog, 1978) or partial least squares structural equation modeling (or PLS-SEM for short; Wold, 1982; Word, 1974; Lohmöller, 1989). We elected to use PLS-SEM for this study for two reasons: (1) the conceptual model is relatively complex, capturing not only main effects but also moderation effects, and (2) this method is not strictly bound by the normal distribution assumption. One of the key benefits is that this method maximizes the explained variance of latent variables. In addition, PLS-SEM has been increasingly applied in such various disciplines as marketing (Hair, Sarstedt, Pieper, & Ringle, 2012), strategic management (Hair et al., 2012), and information systems (Ringle, Sarstedt, & Straub, 2012). The main goal of our research is to investigate how motivations of branded apps enhance value in use which leads to brand equity. Therefore, the variance-based, prediction focused approach with PLS-SEM is suitable. In this research, SmartPLS 3 software was used to test the model (Ringle, Wende, & Becker, 2014). Please refer to Fig. 2 for a visual depiction of the measurement model.

4.2. Measurement model

Two phases were involved in assessing the measurement model: internal consistent reliability and construct reliability. First, the former was tested using three criteria: Cronbach's alpha, composite reliability, and factor loadings. All requirements were met except three issues: Cronbach's alpha for utilitarian motivation (0.63) and hedonic motivation (0.55), and the factor loading of brand loyalty item 3 (0.56) was below the 0.70 threshold. Although those issues raised modest concern, the concern was mitigated when all criteria were taken into account as a whole (i.e., Cronbach's alpha, construct reliability, and AVE; Hair, Black, Babin, Anderson, & Tatham, 2006).

Second, the latter was assessed using convergent validity and discriminant validity. We used AVE to evaluate convergent validity. All values of AVE for related constructs were higher than 0.5. Hence, convergent validity was established. Discriminant validity was evaluated by comparing an AVE value of a construct with squared correlations between that construct and other constructs (Fornell & Larcker, 1981). The finding revealed that all AVEs were greater than those correlations. Therefore, discriminant validity was established (see Table 2).

4.3. Structural model

Following Hair, Hult, Ringle, and Sarstedt (2016), coefficients of determination (R²) and path loadings were used to assess the structural model. Particularly, R² for value in use (50%), perceived quality (35%), brand loyalty (36%), and brand awareness and association (17%) indicated medium or high predictive power for corresponding constructs. Among the six hypotheses predicting main effects, five hypotheses were supported. Specifically, utilitarian motivation and hedonic motivation were positively related to value in use ($\beta = 0.514$, p < .05, and $\beta = 0.344$, p < .05, respectively) while social motivation was not ($\beta = 0.0366$, *n.s.*). Value in use was positively related to three components of brand equity: perceived quality, brand loyalty, and brand awareness and association ($\beta = 0.59$, p < .05; $\beta = 0.598$, p < .05; and $\beta = 0.415$, p < .05, respectively). In brief, H1, H2, H4, H5, and H6 were supported while H3 was not supported (see Table 3).



Fig. 2. Model testing using PLS-SEM.

Table 2

Loadings, reliability, and validity.

Scale Item	Alpha	CR	AVE	$AVE > Corr^2$	Loading	Mean	SD	t-value
Utilitarian motivations		0.80	0.57	0.57 > 0.43				
Average scores of items of "security"					0.83	0.83	0.02	37.41
Average scores of items of "usefulness"					0.70	0.69	0.05	15.49
Average scores of items of "ease of use"					0.74	0.73	0.05	15.50
Hedonic motivations	0.55	0.77	0.52	0.52 > 0.39				
Average scores of items of "interpersonal utility"					0.73	0.73	0.05	15.82
Average scores of items of "attachment with device"					0.69	0.69	0.06	12.26
Average scores of items of "entertainment"					0.75	0.75	0.06	12.97
Social motivations	0.89	0.95	0.90	0.90 > 0.39				
I use this app to keep in touch/share news with my friends and family.					0.93	0.93	0.02	47.19
I use this app to tell my friends and family about what I learned/read/heard.					0.97	0.97	0.01	143.69
Value in use	0.79	0.88	0.70	0.70 > 0.38				
Average scores of items of "personalization"					0.84	0.84	0.02	45.66
Average scores of items of "experience"					0.84	0.84	0.03	32.53
Average scores of items of "relationship"					0.82	0.82	0.02	40.40
Perceived quality	0.94	0.95	0.79	0.73 > 0.43				
This brand is of high quality.					0.91	0.91	0.01	81.41
The likely quality of this brand is extremely high.					0.89	0.89	0.02	43.82
The likelihood that this brand would be functional is very high.					0.88	0.87	0.02	39.99
The likelihood that this brand is reliable is very high.					0.89	0.89	0.02	47.56
This brand must be of very good quality.					0.89	0.89	0.02	54.39
Brand loyalty	0.71	0.83	0.64	0.64 > 0.36				
I consider myself to be loyal to this brand.					0.90	0.89	0.02	57.55
This brand would be my first choice.					0.89	0.89	0.02	49.03
I will not buy other brands if this is available at the store.					0.56	0.55	0.07	8.48
Brand association with brand awareness	0.93	0.95	0.79	0.79 > 0.40				
I know what this brand looks like.					0.91	0.91	0.02	62.36
I can recognize this brand among other competing brands.					0.91	0.91	0.01	67.52
I am aware of this brand.					0.90	0.90	0.02	39.51
Some characteristics of this brand come to my mind quickly.					0.85	0.85	0.02	39.43
I can quickly recall the symbol or logo of this brand.					0.85	0.85	0.03	33.42

Table 3

Hypothesis testing of main effects.

Path	Coefficient	Sample Mean	SD	t- value	<i>p</i> - value	Hypothesis
UTM → VAL	0.51	0.51	0.04	12.97	0.00	H1: Supported
$HED \rightarrow VAL$	0.34	0.36	0.06	5.38	0.00	H2: Supported
$\stackrel{\text{SOM}}{\rightarrow}$	0.04	0.03	0.05	0.73	0.47	H3: Not Supported
$VAL \rightarrow QUA$	0.59	0.59	0.04	14.65	0.00	H4: Supported
VAL → LOY	0.60	0.60	0.04	14.41	0.00	H5: Supported
$VAL \rightarrow BAA$	0.42	0.42	0.05	7.84	0.00	H6: Supported

4.4. Multi-group analysis

Two multi-group comparison analyses (MGA) were implemented through PLS non-parametric procedures (Hair et al., 2016) to test the moderation effects of branded app types (informational vs. experiential) and self-construals. In the former test, branded app type was used as a categorical variable (1 = informational, and 2 = experiential). In the latter test, continuous variables (independent and interdependent selfconstrual) were converted to categorical variables using a median split. As a result, two groups were formed from independent selfconstrual: one with a low score of independent self-construal, and the other with a high score of independent self-construal. Similarly, two groups were created from interdependent self-construal to represent a low level and high level, respectively, of interdependent self-construal. However, the results from MGA did not reveal significant effects for any of the moderating variables (see Table 4).

Table 4

vlu	ltipl	e gro	oup	comparisons.
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App types: informational vs experiential							
	Coefficient		Difference				
Path	Informational	Experiential	between coefficients	<i>p</i> - value			
$SOM \rightarrow VAL$	-0.027	0.025	0.052	0.725			
UTM →	0.387	0.565	0.178	0.986			
VAL Independ	ent self-construal· his	th vs. low					
macpena	Coefficient		Difference				
Path	High independence	Low independence	between coefficients	<i>p</i> - value			
$HED \rightarrow VAL$	0.334	0.406	0.071	0.268			
Interdepe	ndent self-construal:	high vs. low					
	Coefficient		Difference				
Path	High interdependence	Low interdependence	between coefficients	<i>p</i> - value			
$SOM \rightarrow VAL$	0.081	-0.008	0.09	0.826			

5. Discussion

This research is among the first to investigate branded apps from the perspective of value in use. In response to the increasing use of branded apps, a small but growing body of literature has explored the value of branded apps from the view of the goods-dominant logic in which branded apps are associated with value in exchange, discrete transactions, and tangibility. However, exploring issues pertinent to branded apps without the S-D perspective is not enough. In line with Vargo and Lusch (2008), this research moves beyond goods-dominant logic by adopting a unique branded app perspective that shifts attention toward a focus on customers, a co-created customer experience, and brand

relationship (Lusch & Nambisan, 2015).

Taking this view into account, the comprehensive model examined in this research draws from the S-D logic perspective to advance understanding of the antecedents and the outcomes of value in use pertaining to branded apps. Consistent with Taylor and Strutton (2010), an integrative model capturing interdisciplinary notions is strongly needed because of its superior advantage of enabling a better understanding of customers. Consequently, this work has a number of important implications for both scholars and practitioners.

5.1. Theoretical implications

This research offers several important theoretical implications. First, to the best of our knowledge, this work is the first to focus on exploring the antecedents (utilitarian, hedonic, and social motivations) and the outcomes (three components of brand equity: perceived quality, brand loyalty, and brand awareness and association) of value in use in the context of branded apps. Even though brand equity is a driving force for a firm's improved business performance and sales (Aaker, 1997; Gill et al., 2017; Keller, 1993), research into mechanisms for improving customer perceptions of brands and brand equity through the S-D logic of branded apps is sorely lacking (Fang, 2019). This work marks an important step in our understanding of these branded apps by demonstrating the importance of value in use, and its antecedents, for enhancing brand equity.

Second, while demonstrating the value of the S-D logic in this research space, an important contribution also emerges from the demonstrated effects of value in use on customers' improved evaluation of brands (i.e., brand equity). By integrating brand equity as an outcome, our study provides deeper insights into an untapped area of research focusing on how brand equity is impacted by value in use in the branded app context. Additionally, building on the branding literature and prior S-D research, this work provides a better understanding of the S-D logic. Specifically, this research investigates the influence of value in use on brand equity. Consistent with previous research (Vargo & Lusch, 2008), the findings of this research confirm that value in use has a positive impact on perceived quality, brand loyalty, and brand awareness and associations.

Finally, Achrol and Kotler (2012) suggest that S-D logic is a multidimensional perspective and that only certain dimensions should be further explored. The authors advise that future research should especially investigate the relational aspect of the S-D logic. This study used three sources of motivations (utilitarian, hedonic, and social) as drivers of value in use because motivations could be a driving force in consumer engagement with branded apps. As the customer-brand relationship is enhanced, other desired outcomes, such as perceived quality, brand loyalty, and brand awareness improve. In this work, we found that motivations explain 50% of the variance in value in use ($R^2 = 0.50$), lending support to the notion that motivations play an important role in improving value in use in the context of branded apps. These findings broaden the applicability of motivation sources into a new technology related context: branded apps.

5.2. Managerial implications

This research also provides practical lessons for firms and managers. First, companies and app designers should strive to enhance consumers' value in use. As Grönroos and Voima (2013) recommend, companies should seek opportunities to create extra interactions with customers beyond existing relationships. This research demonstrates that branded apps open a new and potentially powerful channel for companies to connect with their current and potential customers. Firms that invest in developing high quality branded apps that support these extra interactions, and that provide an opportunity for consumers to build a community around the brand, can expect to see improvements in the customer relationship.

Second, although companies and app designers cannot fully control the construction process of value in use because it is co-created with customers, companies can still enhance customer perceptions of branded apps, products, or services by managing the process of value cocreation through branded apps. As this work demonstrates the effect of motivations on value in use, app designers and companies should capitalize on these findings and incorporate them early on in the designing phase of the product development process by providing app features that can satisfy both users' desire for efficient information retrieval while still providing the opportunity for the "thrill of the hunt" sought by those with hedonic motivations, perhaps through sales and promotional activities. Yet, while this work demonstrates that utilitarian and hedonic motivations have a positive impact on value in use, it does not reveal a substantial influence from social motivations. Perhaps the insignificant role of social motivation could be attributed to underdeveloped functions for supporting community-building with the apps. The lack of such features creates a new opportunity for app designers to incorporate advanced technology such as artificial intelligence, Siri and Alexa compatibility, or requesting systems that may help support and facilitate social interactions. Therefore, companies should pay more attention to features that enhance social interaction or motivation of branded apps between customers and brands.

Finally, the application of the S-D logic and value in use within the context of branded apps is important for firms that utilize (or plan to utilize) branded apps. Our results confirm that value in use plays a critical role in enhancing brand equity. As contrasted with the goodsdominant perspective, S-D logic requires users to stay engaged in the value co-creation process. In other words, the process could not happen without customers' continued involvement and participation (Lusch & Vargo, 2014). Consequently, firms must be certain to build into their app features that allow consumers to customize their in-app experience. The Starbucks app provides a constructive example. With this app, customers can personalize their menu items and make their favorite drinks within the app. These favorite and customized items can then be ordered directly from the app or shared to social media. Additionally, users can download the latest news directly in the app, giving users another reason to engage with the app and the brand. Starbucks has successfully turned this app to their advantage, creating new opportunities to co-create value that benefits both the firm and customers because Starbucks can provide better customer service and support. All of these will translate into more effective customer experiences and stronger relationships with customers and are tactics that firms are advised to employ.

5.3. Limitations and future research

Despite meaningful theoretical and practical implications, the current research is not without limitations. First, the research relies on data collected solely in the US. Although the results generalize to this country, the model might not hold as strongly for other countries. For instance, Americans tend to be much higher on the cultural dimension of independence—much as with independent self-construals, they tend to see themselves as more unique and adopt self-promotion goals (Hofstede & Bond, 1984). Consequently, U.S.-based consumers may be more influenced by the ability to customize and personalize their experience in the app, while cultures that tend more towards collectivism (or interdependence, as is often the case among cultures in Eastern Asia) may respond differently to the in-app experience and derive value in use along different paths. Therefore, further research should examine these effects among other cultures and nations.

Secondly, survey respondents were presented with a definition of the type of app under study based on which treatment they were assigned to (i.e., informational vs. experiential) and asked to identify and focus on one app that they use and that corresponded to the provided definition. Consequently, the apps are selected subjectively. Data show that the same app (i.e., Amazon) can be viewed as an informational app by one respondent, but as an experiential app by the other. This may have

influenced results (specifically the moderation effects of app type). Future research should address this issue by creating two different lists of apps from which participants can choose rather than allowing for subjective selection. Those lists could be validated through pilot testing; then respondents could be assigned to a particular list on a random basis.

Finally, this research does not take into account some variables that could affect the desired outcomes, such as first-time users versus experienced users, or free apps versus purchased apps. A potential avenue for future research lies in incorporating such control factors to eliminate undesired effects. Ideally, multiple group analysis (MGA) could be performed to have a comparison between different groups (i.e., first time versus experienced users). Through that method, more precise results could be attained.

6. Conclusion

Although branded apps have emerged as an important tool in brand marketing and advertising, research on how branded apps enhance brand equity through a Service-Dominant logic has yet to emerge. Given the central roles of value in use and value co-creation in S-D logic, in conjunction with the co-created experience users enjoy with branded apps, applying the framework in this domain is crucial for advancing the field's understanding of how branded apps influence important brand outcomes. Building upon S-D logic, this research developed and tested a comprehensive, theory-driven model of how different consumer motivations inform value in use and, subsequently, brand equity to provide a better understanding of the value of branded apps. The results from 323 branded app users show that five hypotheses capturing the main effects are supported. However, four hypotheses capturing moderation effects are not supported. In particular, utilitarian motivation and hedonic motivation have an impact on value in use which, in turn, leads to enhanced perceived quality, brand loyalty, and brand awareness and associations-the three components of brand equity. Social motivation, on the other hand, is not a significant antecedent of value in use. In terms of moderation effects, there is no statistical difference between informational versus experiential apps, nor between independent versus interdependent self-construal. This work provides important information for the direction of future scholarship by applying the value in use perspective to branded apps, revealing a number of actionable ways organizations can use branded apps to improve customer relationships.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jbusres.2020.12.029.

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