Enhancing brand equity in branded apps: A hedonic and utilitarian motivation’s perspective

Trang P. Tran a,b, Ilia Gugenishvili a,b and Adrienne F. Muldrow a,b,c

aDepartment of Marketing & Supply Chain Management, College of Business, East Carolina University, Greenville, NC, USA; bDepartment of International Marketing, Åbo Akademi University, Turku, Finland; cSchool of Communication, College of Fine Arts and Communication, East Carolina University, Greenville, NC, USA

ABSTRACT
Although an increasing amount of research nowadays investigates the impact of mobile apps, how branded apps influence desirable outcomes, such as brand equity, remains underexplored. This research develops a conceptual model to capture how perceived motivations and task-service fit influence brand engagement and enhance brand equity via branded apps. Data collected from 292 mobile app users show that utilitarian motivations positively impact task-service fit, that task-service fit has a positive impact on consumer brand engagement and brand equity, and that consumer brand engagement has a positive impact on brand equity. Conversely, hedonic motivations do not significantly influence task-service fit. This work provides a better understanding of the influence of task-service fit on brand equity via branded apps. It also generates practical implications for brands to successfully develop their apps and use them to enhance brand equity.

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Introduction

“To better capitalize on this rapid growth in mobile usage, retailers must implement stronger planning and execution of mobile marketing strategies” (Mobile Marketing Association 2015, 1).

One of the critical strategies that firms have employed in the age of mobile phone and mobile commerce is branded applications (or branded apps in short). Branded applications—the apps used on a smartphone to ‘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 et al. 2011, 191)—have not only drawn the attention of customers and firms but also of marketing researchers.

More firms understand the role that branded apps have played in businesses and the connection between branded apps and their own future success. As a result, firms are paying more attention to branded apps and finding ways to promote apps to on-the-go customers in the hope of creating favorable customer perceptions of product quality, thus increasing the awareness of their brand and enhancing customer brand loyalty in the marketplace,
which ultimately translates into stronger brand equity. As smartphones gain more influence in people’s lives, most retailers have developed mobile applications (or mobile apps in short), which more than two-thirds of their customers download (Synchrony 2018).

An increasing amount of research is being devoted to investigating the impact of mobile apps on brand loyalty (Wang, Kim, and Malthouse 2016), engagement (Gill, Sridhar, and Grewal 2017), firms’ bottom lines (van Noort and Van Reijmersdal 2019), and two-way communication (Hamilton, Kaltcheva, and Rohm 2016). Other researchers have explored solutions to improve brand equity, such as mobile service attributes (Wang and Li 2012), app identifiability, and personalization (Stocchi et al. 2021; Valavi 2014). However, research examining the relationship between the hedonic and utilitarian motivations that influence the brand equity of branded apps through task-service fit (TSF) remains scarce. As a result, the current paper aims to answer two research questions: 1) Can brand equity be enhanced by adopting branded apps in marketing strategy? and 2) If so, what is the role of task-service fit in enhancing brand equity in the context of branded apps? Using self-determination theory (Deci and Ryan 1985), we develop a model that captures how perceptions of task-service fit are shaped and how they influence brand equity. Specifically, we explore how both utilitarian and hedonic motivations of branded apps enhance task-service fit, which, in turn, leads to brand engagement and brand equity.

The paper contributes to the branded app literature in three ways. First, it identifies how task-service fit can, directly and indirectly, predict brand equity through consumer brand engagement. This perspective mirrors the concept of value-in-use promoted by Fang (2019). Second, we further acknowledge multi-channel research (Schoenbachler and Gordon 2002) by illustrating the importance of utilitarian features in an m-commerce setting as an integral strategy for building strong brand engagement and brand equity as part of a successful multi-channel approach. Third, the paper sheds light on the mediation mechanism by showing that consumer brand engagement partially mediates the impact of task-service fit on brand equity.

The managerial implications are that an effective mobile marketing strategy can set a firm apart in the competitive landscape of a technology-driven age. It is even more important when mobile marketing is developed in harmony with other marketing strategies to create an integrated marketing communication solution. Integrated marketing communication is defined as ‘a concept of marketing communication planning that recognizes the added value of using a comprehensive plan to evaluate the strategic roles of a variety of communications disciplines’ (Peltier, Schibrowsky, and Schultz 2003, 93). Importantly, a firm utilizing an integrated marketing communication approach will take advantage of all forms of communication, different types of communication channels, and every contact point when it plans and implements a marketing communication strategy. Therefore, an effective mobile marketing strategy plays a role in the success of an integrated marketing communication program in which a firm integrates various tools and employs various communication channels to deliver a clear and consistent message about its product and brand.

In the following sections, related literature is reviewed, and hypotheses are developed. Then, the methodology is outlined, within which the assessment of the measurement model and structural model is discussed. Finally, the paper concludes with theoretical and managerial implications, limitations, and future research suggestions.
Literature review

Branded mobile apps

Mobile applications are interactive, downloadable programs that add functionality to mobile devices by providing intangible services (Bellman et al. 2011; Fang 2017a, 2019; Kim, Lin, and Sung 2013) and by making products and services available anytime and anywhere (Wang, Kim, and Malthouse 2016). Among their many functions, mobile apps compare products, track orders, browse menus and provide directions (Fang 2017a; Kim, Lin, and Sung 2013). Nowadays, all the big brands, such as Ikea, Starbucks, and H&M, use apps for communication, customer relationships, sales, product innovation, and research (Zhao and Balagué 2015). Unlike non-branded apps, branded apps are connected to specific brands (Bellman et al. 2011; Boyd, Kannan, and Slotegraaf 2019) and display a company’s brand identity through its name, colors, logo, style, slogan, and other identifiers (Bellman et al. 2011; Kim, Lin, and Sung 2013).

Studying information systems, Bhattacharjee (2001) stated that although first-time use is crucial, only continued use determines the long-term viability of a new system. Branded apps are no exception. In other words, merely having an app and promoting its adoption is not enough, as apps bring no value to companies unless users use and update them periodically. Furthermore, these apps being free, users easily switch to an alternative (Li & Fang 2019). In fact, as many as 25% of apps downloaded worldwide are only used once before being uninstalled (Khomych 2020). According to Ahmed, Beard, and Yoon (2016), the average user installs roughly 40 applications but only uses 15 or fewer regularly. Thus, more than ever, brand managers need to capture consumers’ attention to increase consumer brand engagement to ensure the longevity of apps (Jung 2014; Zhao and Balagué 2015). However, this is easier said than done.

Scholars who study apps especially stress the importance of consumer value. These studies claim that the values delivered by branded apps motivate users differently and influence their attitudes, intentions, and behaviors (Cheng, Huang, and Lai 2021; van Noort and Van Reijmersdal 2019). For example, the branded YouTube app allows users to accomplish the task of enjoyment in a variety of ways, including the chance to watch a movie, see short clips, tell YouTube which ads they like and do not like, and even be provided with other YouTube clips they might potentially like based on their past viewing histories. These features increase the chances of users returning to the app. Brands understand the importance of branded apps, and they pay special attention to them to raise brand awareness and strengthen customer brand loyalty, ultimately leading to increased brand equity.

Brand equity

Brands transmit practical and symbolic information about products and services, allowing consumers to link personal meanings to them. Oh et al. (2020) identify four eras in branding research, one of which focuses on brand equity. Although the concept has several definitions, most researchers agree that brand equity is the incremental utility or value added to a product by its brand name (Veloutsou and Guzman 2017; Yoo, Donthu, and Lee 2000).
Researchers have used various approaches to measure brand equity, including firm-, customer-, product-, and society-based perspectives (Davcik, Da Silva, and Hair 2015; Lu, Gursoy, and Lu 2015; Swaminathan et al. 2020). This study adopts a customer-based perspective that focuses on customer-brand interactions (Davcik, Da Silva, and Hair 2015). When measuring customer-based brand equity, according to Veloutsou and Guzman (2017), many researchers follow Aaker (1991) four-dimensional model (e.g., Dwivedi, Johnson, and McDonald 2015; Su and Tong 2015). Nevertheless, alternative conceptualizations for measuring the construct have been used in recent studies (Veloutsou and Guzman 2017). Particularly, Yoo, Donthu, and Lee (2000), Yoo and Donthu (2001) suggest that brand equity should include perceived quality, brand loyalty, and brand awareness. According to Yoo and Donthu (2001) conceptualization, brand equity equates to consumers holding strong positive associations with the brand and its quality, recognizing it, being loyal to it, and remembering it.

Several researchers have identified perceived quality as an important dimension of brand equity (e.g., Baalbaki and Guzmán 2016; Yoo, Donthu, and Lee 2000; Yoo and Donthu 2001). Perceived quality represents the user’s subjective judgment of a product or service (Aaker 1991; Baalbaki and Guzmán 2016; Zeithaml 1988). In general, perception is formed based on usage experience. However, people who have never used the product or service tend to base their perception on the brand name, price, or company’s marketing content (Dodds 2002). Perceived quality changes depending on how users regard the criteria they use when making judgments (Aaker 1991).

Oliver (1997) describes brand loyalty as ‘a deeply held commitment to rebuy or patronize a preferred product or service consistently in the future, despite situational influences and marketing efforts having the potential to cause switching behavior’ (p. 392). Brand loyalty has been measured from behavioral, attitudinal, and composite perspectives. The behavioral perspective looks at the actual behavior (e.g., repeated purchases), the attitudinal loyalty perspective examines consumers’ loyalty intentions, and the composite perspective measures brand loyalty by combining the two behavioral and attitudinal loyalties (Pappu, Quester, and Cooksey 2005; Smutkupt, Krairit, and Khang 2012). In this research, we employ the attitudinal loyalty perspective.

Lastly, brand awareness is the ability of a potential buyer to recognize the brand (Stocchi et al. 2021) and recall to which product category it belongs. Users base these associations on single or multiple episodes of experiences or exposure. Associations created based on episodes are stronger and form brand awareness, which significantly influences decision-making (Zia, Younus, and Mirza 2021), by motivating consumers to consider the brand and choose its products or services from among alternatives (Aaker 1991; Yoo, Donthu, and Lee 2000).

To understand the connection between branded apps and brand equity, various researchers have looked at how these two relate and how to design branded apps that successfully drive brand equity. The next sub-chapter discusses this relationship.

**Branded mobile apps and brand equity**

Despite the potential of branded apps, the current literature is limited. Stocchi, Michaelidou, and Micevski (2019) argue that most studies consider branded apps to be extensions of existing businesses. As a result, these studies focus on understanding how
brands power apps and not the other way around. This creates a scarcity of knowledge on how to increase mobile app performance (Stocchi et al. 2021). Moreover, Stocchi et al. (2021) state that when looking at customer-based brand equity, researchers mostly focus on web-based technology and social media rather than the mobile app itself. In 2005, Rondeau called for a deeper understanding of which features of applications (i.e., product and visual design, usability, or usefulness) have a larger influence on brand perceptions. Responding to this call, a limited number of studies have looked at how different types of apps, their features, and motivations for using these apps influence brand equity in the mobile context.

Focusing on the specific app features, Wang and Li (2012) experimentally tested a link between mobile service attributes and brand equity elements. Researchers concluded that personalization, identifiability, and enjoyment positively affected brand equity elements, such as perceived quality, brand loyalty, awareness, and associations. Additionally, identifiability and personalization were found to be drivers of brand equity by Valavi (2014). Stocchi, Michaelidou, and Micevski (2019) discovered that privacy, customizability, and the compatibility of apps with the tasks lead to increased usefulness and ease of use perceptions, as well as enhanced usage intentions. Similarly, Pour and Kazemi (2020) highlighted the importance of ease of use and suggested that, together with content quality, these two are important for branding in m-commerce.

Ekizler (2019) specifically focused on branded mobile apps and investigated how utilitarian and hedonic features influence brand value by changing users’ satisfaction. The researcher identified application quality and utility as utilitarian benefits and enjoyment and aesthetics, privacy, price perceptions, and technicality as hedonic ones. He found a correlation among all the concepts, except for the apps’ aesthetics and privacy risk. Similarly, Stocchi, Pourazad, and Michaelidou (2020) validated a model where the past use of branded mobile apps led to utilitarian and hedonic benefit perceptions, ultimately motivating the continued use of branded apps. Following the same line of argumentation, Tran, Mai, and Taylor (2021) found that utilitarian and hedonic motivations for using branded mobile apps lead to increased quality perceptions, brand loyalty, and brand awareness by changing the value-in-use. At the same time, social motivation did not emerge as an important influencer. Perceived values and experience have also been found to drive mobile data service providers’ images and equities (Abu Elsamen 2016).

The influence of the app type on brand-related outcomes has also received some attention. For instance, research has established that to be successful apps tied to brands should be free. On the other hand, non-branded apps should be offered at a price. Again, success is established by looking at whether apps can attract new users and contribute to building a stronger brand image (Stocchi, Guerini, and Michaelidou 2017). These authors did not, however, evaluate other important aspects of brand equity, such as brand awareness or recognition. In another study, van Noort and Van Reijmersdal (2019) found that, on the one hand, entertainment apps positively influence brand attitudes and relationships; information apps, on the other hand, lead to cognitive brand responses, such as brand cognition and brand beliefs.

Finally, more recently, while aiming to understand how to create and successfully manage branded apps, Stocchi et al. (2021) created and tested a simple customer-based brand equity framework. Based on an online survey of Australian users, the researchers
found that a branded app’s awareness and branded app’s image significantly correlate with the app’s overall strength and customer-based brand equity. At the same time, brand image was identified to be a stronger influencer than awareness.

The studies reviewed above provide valuable insights for a better understanding of brand equity, its elements, and other brand-related outcomes in the context of branded mobile apps. Still, creating a clearer picture of how brand equity can be attained through mobile apps calls for considering a wider variety of variables belonging to hedonic and utilitarian motivations. Additionally, considering different influences and theoretical perspectives generate a more holistic understanding of how branded apps create brand equity. Having introduced and reviewed the main concepts, we will now introduce the theoretical framework of this study, which highlights the original take of our conceptual model.

**Theoretical framework**

Our theoretical framework is based on the self-determination theory from Deci and Ryan (1985). Self-determination theory asserts that for any given behavior, humans have not just varying levels but also varying forms of motivation (Deci and Ryan 1985; Villalobos-Zúñiga and Cherubini 2020). According to this view, human motivation is driven by satisfying innate psychological needs for competence (the need to be effective in one’s environment and to attain valuable outcomes), autonomy (a need for volition and activity to be integrated with one’s sense of self), and relatedness (a need for relationships) (Ryan and Deci 2000). Although self-determination theory was first proposed with regard to social contexts, the use of the theory has expanded into many domains, such as technology and user motivations (e.g., Rezvani, Khosravi, and Dong 2017). Applying the theory, researchers argue that psychological need satisfaction motivates users, leading to beneficial marketing outcomes. Gilal et al. (2019), for example, purport that consumers who have the above-mentioned psychological needs satisfied are linked to increased customer retention, brand attachment, brand preference, and brand loyalty.

Branded mobile apps satisfy basic motivations by delivering hedonic and utilitarian values. Hedonic values are non-functional and emotional and help users obtain excitement, pleasure, fun, and self-fulfillment (Tarute, Nikou, and Gatautis 2017; Xu, Peak, and Prybutok 2015). These values are subjective and personal (Yang and Lee 2010). Alternatively, utilitarian values are functional and non-emotional (Hsiao, Chang, and Tang 2016; Xu, Peak, and Prybutok 2015). Utilitarian features help users perform tasks efficiently (Hsiao, Chang, and Tang 2016; Tarute, Nikou, and Gatautis 2017) and are objective, rational, and non-personal (Batra and Ahtola 1991). In light of self-determination theory, values satisfy two types of motivations: intrinsic and extrinsic (Babin, Darden, and Griffin 1994; Deci and Ryan 1985). Intrinsic motivation is based on doing something because it is intrinsically engaging or delightful, for example, using an app to watch a movie or listen to music. Therefore, when users use hedonic features, they satisfy their intrinsic motivations (Ryan and Deci 2000). In contrast, extrinsic motivation refers to doing something because it produces a specific result, for instance, using the app to purchase products (Ryan and Deci 2000; Villalobos-Zúñiga and Cherubini 2020). Thus, users satisfy their extrinsic motivations by employing the app’s utilitarian features (Ryan and Deci 2000).
By satisfying basic motivations, branded apps help users to pursue specific tasks. In other words, apps satisfying such motivations lead to increased task-service fit perceptions. Task-service fit is ‘the extent to which service supports consumers in performing their portfolio of tasks’ (Fang 2017, 575). ‘Service’ in task-service fit stands for objects of exchange, which can be tangible or intangible (Lusch and Vargo 2006). The notion of task-service fit has been quickly adopted by information systems researchers, maybe due to its similarities to the concept of task-technology fit. According to both concepts, when the congruence between the task characteristics and solutions for accomplishing this task is high, it influences the task results. We may argue that task-related attainment encourages regular app usage and therefore brand engagement. This has been proved by several studies on internet users (e.g., Oliveira et al. 2014; Yuan et al. 2016). Task-service fit perceptions and brand engagement will eventually strengthen consumer-brand relationships and lead consumers to form strong positive associations with the brand and its quality, become loyal, and recognize the brand, among others. To the best of our knowledge, Fang (2017) and Tran, Furner, and Gugenishvili (2022) are the studies that have adopted the concept of task-service fit in the context of branded mobile apps. Fang (2017) found that perceptions of task-service fit lead to continuance intentions regarding branded apps. Additionally, Tran, Furner, and Gugenishvili (2022) found that task-service fit significantly influences brand loyalty, and app experience and brand co-creation mediate this relationship. We argue for these relationships in more detail in the following sub-chapter on the hypothesis development.

Hypothesis development

The role of hedonic and utilitarian motivations

Task-service fit views an app not as a product but as a service that supports customers in accomplishing their tasks. These tasks vary and may include finding information, comparing products, shopping, and locating and reviewing businesses. Thus, task-service fit emphasizes the match between the task requirements and the capability of a specific service to meet these requirements (Fang 2017). The overarching assumption of the task-service fit model is that for the service provided by branded apps to be utilized, it must be a good fit with the tasks at hand. In other words, if consumers do not continuously engage with their chosen branded apps, branded apps will be of no real value to consumers, firms, or marketers.

Some consumers choose to use branded apps for hedonic reasons. The hedonic motivations of branded apps are derived from the hedonic values they deliver. Stocchi et al. (2018) identified interpersonal utility, attachment to the device, and entertainment as the most important hedonic motives. The interpersonal utility is the ability of branded apps to satisfy users’ need for inclusion, affection, and control through discussions, social belonging, and self-expression. For instance, research has shown that people often consider their mobile devices personal objects or extensions of themselves. This, in turn, leads them to develop a deeper emotional relationship and even attachment. Specifically, many branded apps serve entertainment purposes, allowing users to experience fun and enjoyment (Hsiao, Chang, and Tang 2016; Xu-Priour 2015) and to experience self-expression and social belonging. For example, on the lifestyle
image-sharing app *Pinterest*, users get the chance to create and share customized ‘boards’ with posts of different design and style ideas, which not only bring them joy but also allow them to experience moments of self-expression as well as a sense of belonging with friends and users who share the same interests (Swenson 2020). Arguably, these motives are experiential, non-instrumental, and affective (Sánchez-Fernández and Iniesta-Bonillo 2007); thus, they represent the intrinsic intent to download and use the app (Xu-Priour 2015), central tenets of hedonic influence (Davis, Bagozzi, and Warshaw 1992; Xu-Priour 2015).

Prior research demonstrates that consumers enjoy (or gain enjoyment from) the rapid acquisition of useful [task-oriented] information (Chen, Meservy, and Gillenson 2012; Scholz and Duffy 2018). Consequently, we believe that the degree to which hedonic features augment the service provided by a branded app supports users in better accomplishing their tasks. For example, L’Oréal’s Makeup Genius app utilizes a customized facial recognition tool that allows its users to use their mobile phones as mirrors to virtually try on various L’Oréal makeup products. This fun-filled feature quickly provides users with useful task-oriented information when purchasing the products (SmartDataCollective, 2015). Consequently, hedonic-based features on branded apps translate into a positive psychological perception of that app, thus enabling consumers to complete a relevant task more effortlessly. Hence, we propose the following:

**H1:** Hedonic motivations of branded apps are positively associated with the task-service fit.

Utilitarian values create utilitarian motivations. According to Stocchi et al. (2018) and Zhu et al. (2014), utilitarian motives for downloading and using the apps include security, usefulness, and ease of use. Moreover, Fang (2017a) re-emphasized the importance of usefulness as a critical construct. In the context of branded apps, it refers to an app’s ability to help users solve practical problems and reduce cognitive or behavioral effort. Judgments regarding apps’ usefulness are often based on perceptions of how workable, customizable, convenient, and relevant they are. Finally, ease of use reflects the concept of simplicity (Stocchi et al. 2018). Simplicity is particularly relevant as branded apps are used on mobile devices with limited screen sizes and space (Ozturk et al. 2016). Lastly, for users to perceive an app as easy to use, it should be user-friendly, self-explanatory, and easy to navigate (Stocchi et al. 2018). For example, the clothing retailer, *Target*, released a simply designed mobile app that allows users to complete an online shopping task with useful features, such as allowing users to check in-stock inventory, letting users choose the mode of delivery (same-day delivery or pick up in-store), and giving them the option to create a shopping list for return visits (Swenson 2020).

Using Stocchi et al. (2018) conceptualization, the more secure, easy to use, and useful consumers find a branded app, the more value they perceive when performing a task. Hence, consumers using branded apps look for security, ease of use, and usefulness in completing utilitarian tasks, such as finding information, shopping, and locating and reviewing businesses. Accordingly, increasing the perceived value of utilitarian features of an app also increases its task-service fit because task-service fit emphasizes the match between task requirements and a specific service’s capability (Fang 2017b).
H2: Utilitarian motivations of branded apps are positively associated with the task-service fit.

The role of task-service fit

Previous research declares that a well-implemented task-service fit, albeit intrinsically, motivates consumers to continue to use branded apps (e.g., Yang et al. 2015). Fang (2017b) argues that users will use a particular branded app if it fits with their search and shopping task needs because such apps generate collaborative value and enhanced shopping efficiency. Similarly, Tran, Furner, and Gugenishvili (2022) found that task-service fit leads to loyalty. Moreover, Viswanathan et al. (2017) imply that branded apps positively influence companies’ chances of engaging and retaining customers. Specifically, while completing a shopping task, consumers can engage with the brand in numerous integrated ways, such as taking advantage of utilitarian motivations by viewing previously favored products or reviewing prior purchases, all while also satisfying themselves through more hedonic-oriented motivations, such as obtaining instantaneous and helpful suggestions about other in-store products and checking their loyalty points (Schiff 2015). Having the user complete a task while utilizing several app features increases engagement and efficiency, generating collaborative value. Therefore, we hypothesize the following:

H3: Task-service fit is positively associated with a consumer’s engagement with brands on branded apps.

Brand equity is the added value a particular product or service receives due to its brand name. Brand equity provides consumers’ choices with added value when choosing between branded and unbranded products, given that the products are otherwise identical. It helps consumers differentiate products and services based on non-price competition, thus creating a competitive brand advantage. Companies must ensure that consumers hold strong positive brand associations for branded apps to increase brand equity. That is, consumers can remember and recognize the branded app, perceive the branded app as high quality, and become loyal to the branded app (Yoo, Donthu, and Lee 2000).

Analogous to the concept of task-service fit, Li and Fang (2019) show that value-in-use, a combination of a personalized experience and relationships, is positively associated with brand loyalty. Scholars show that consumers indicate a higher level of loyalty to brands whose branded apps meet consumer needs, allow consumers to experience new things, build interest in the brand, and build a relationship with the brand. Moreover, Fang (2019) indicates that brand loyalty is a separate concept from continuance and suggests a different path from this concept to brand loyalty. This shows that value-in-use leads to brand warmth, which, in turn, leads to brand loyalty. Hence, an app’s ability to generate brand loyalty depends on a consumer’s close relationship with that brand. Consequently, we posit that a branded app that allows consumers to complete tasks successfully and that employs task-service fit makes consumers feel a sense of personalization. As a result, the firm can further the brand relationship because the consumers will have a favorable,
intrinsic shopping experience to which they will return in the future. As previously stated, merely having a branded app perform a task may create enough intangible brand warmth, which prompts consumers’ repetitive use of the app. Through repetitive use, the task-service fit underlying the branded app strengthens the facets that increase brand equity. Hence, we predict the following:

**H4:** Task-service fit is positively associated with brand equity on branded apps.

**The role of brand engagement**

Consumer brand engagement is a transaction-specific bundle of customers’ brand-related cognitive, emotional, and behavioral brand activity (Hollebeek, Glynn, and Brodie 2014). Drawing upon the psychological aspect, Dwivedi, Johnson, and McDonald (2015) describes consumer brand engagement as ‘customers’ positive, fulfilling, brand-use-related state of mind characterized by vigor, dedication, and absorption” (p. 100). Engaged customers willingly invest resources to interact with brands and are thus more loyal (Hollebeek, Srivastava, and Chen 2019; Jaakkola and Alexander 2014; Obilo, Chefor, and Saleh 2021). Alternatively, brand equity can be considered the extra customer-perceived value added to a similar product arising from the possession of a specific brand name (Aaker 1991; Yoo and Donthu 2001) or the value conceptualized from the brand name itself.

Consumer brand engagement is positively correlated to customer-based brand equity (Hepola, Karjaluoto, and Hintikka 2017; Machado et al. 2019). Customer-based brand equity is the idea that customers acquire ‘value’ from a brand through brand awareness and the associated cognitive and emotional attributes (e.g., Yoo and Donthu 2001). Relevant to this study, Stocchi et al. (2021) imply that customer-based brand equity is a process where the differential effect of brand knowledge, a combination of branded app awareness and the branded app image, can help explain the key outcome of brand strength or equity. Further, Chaudhuri (1995) demonstrates that brand equity can be derived directly from brand attitudes or habits or acquired through brand loyalty. Prior studies have established a direct link between consumer brand engagement and loyalty (e.g., Fernandes and Moreira 2019; Kaur et al. 2020). Specifically, a study by Shabbir, Khan, and Khan (2017) shows that brand awareness and brand loyalty directly lead to brand equity. Brand equity can be acquired by elements of the brand image leading to brand awareness, which, in turn, leads to brand equity.

The mobile context presents a unique opportunity for marketers to engage effectively with customers to build brand equity. First, mobile devices are readily accessible with instantaneous access to most tasks. Hence, in the mobile context, technology changes customer expectations about a brand’s responsiveness to their desire to accomplish a task because of the anytime connectedness to a customer base (Gürhan-Canli, Hayran, and Sarial-Abi 2016). Consequently, customers are presented with omnipresent opportunities to choose and recall their favorite brands (Wang, Kim, and Malthouse 2016), either automatically with a clickable logo or through a categorized search. With regard to the back end, companies invest in technology to obtain real-time relational customer information to streamline, customize, and otherwise enhance and improve operational
efficiencies (Gürhan-Canli, Hayran, and Sarial-Abi 2016; Kumar and Zahn 2003), whereby tasks can be completed more effectively. So, the next time a customer returns to the mobile device, their favorite quality-oriented brand instantly comes to mind, they select that particular branded app, and they complete the task effortlessly. As a result of the ‘value’ created by this beneficial task engagement, we argue that customers will return and repeatedly patronize that particular branded app, thus creating brand equity. Therefore, we posit as follows:

H5: Consumer brand engagement is positively associated with brand equity in branded apps.

All the hypothesized relationships capturing the effect of motivations derived from branded apps on how task-service fit improves brand engagement and brand equity are illustrated in Figure 1.

**Materials and methods**

**Sampling and procedure**

We created an online survey through Qualtrics. We collected data from business students attending two large state schools in the United States. Students received course credit for their participation. At the beginning of the survey, a branded app was defined as ‘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 to customers, and give customers more access to their businesses’. Only participants who had used a branded app in the past were selected to proceed to the next section, in which the participants were then asked to think about an app they used and provide the name of that app. Then, the respondents completed the questionnaire, followed by the demographic questions. Finally, we thanked participants for their participation.
A total of 292 responses were completed and met the requirements. These responses were used for the analysis. The demographic data showed that most of the respondents used free apps (97%) and were young (20- to 30-year-olds accounted for nearly 70%), and more than half had a high school degree or lower, nearly two-thirds spent 1 to 5 hours a day on apps, and the sample contained more females (65%) than males. Additionally, the 28 apps reported varied from very popular ones, like Amazon, TikTok, and Instagram, to less popular apps, such as Dominos, Micheals, or PNC (see the Appendix).

**Scale measurements**

All the following measurement scales were adopted from related literature and adjusted to fit the branded app context: utilitarian motivations (including three components: security, usefulness, ease of use), hedonic motivations (including interpersonal utility, attachment to the device, entertainment) (Stocchi et al. 2018), brand equity (including three components: perceived quality, brand loyalty, and brand awareness and association) (Yoo, Donthu, and Lee 2000), consumer brand engagement (including three components: cognitive processing, affection factor, activation factor) (Hollebeek, Glynn, and Brodie 2014), and task-service fit (Lin and Huang 2008). We selected these measurement scales for this study because they were developed (i.e., hedonic and utilitarian motivations) or adapted (i.e., task-service fit, consumer brand engagement, and brand equity) for the branded apps context. We selected these measurement scales because they have been tested and validated in the branded app literature (Qing and Haiying 2021; Tarute, Nikou, and Gatautis 2017; Tran, Mai, and Taylor 2021; Wang and Li 2012). All the constructs are higher-order constructs except for task-service fit.

**Results**

**The PLS approach**

Two statistical approaches can be used to estimate causal relationship models: a covariance-based approach (Jöreskog 1978; Jöreskog and Sörbom 1982) and partial least squares structural equation modeling (PLS-SEM) (Lohmöller 2013). We elected to use PLS-SEM for this study for two reasons: (1) the conceptual model is relatively complex and captures the relationship between higher-order and lower-order constructs, and (2) this method is not strictly bound by the normal distribution assumption. Although PLS-SEM does not produce the model fit as its covariance-based counterpart does, this approach maximizes the explained variance of latent variables, and it uses this as a sufficient alternative fit index (Sarstedt et al. 2014).

Furthermore, PLS-SEM has been extensively applied in strategic management, marketing, and management information systems (Hair et al. 2012). This research explores how three sources of motivations affect value-in-use, which, in turn, affects brand equity; therefore, a prediction-oriented, variance-based approach with PLS-SEM is appropriate. The model is estimated using SmartPLS 3 software (Ringle, Wende, and Becker 2014).
Assessment of the measurement model
Since our study includes first- and second-order constructs, we assess both in the following sections.

The first-order constructs
We evaluated three criteria to assess the internal consistency reliability: Cronbach’s alpha, the composite reliability, and factor loadings. Compared with the cut-off values of 0.7, the Cronbach’s alphas of all the constructs ranged from 0.728 to 0.941, and the composite reliability ranged from 0.853 to 0.959, thus exceeding the requirements. All the factor loadings met the requirement (greater than 0.7) except for those of 3 items – UTI1 (0.506), QUA6 (0.586), and BAA6 (0.660)—which had loadings of less than 0.6, and that of one item – ACT1 (0.615)—which had a loading of between 0.6 and 0.7. We decided to remove the three items with loadings of less than 0.6. With regard to the other item (ACT1), we decided to keep it because the measures of convergent and discriminant validity were not affected by this item (Hair et al. 2017) (see Table 1).

Additionally, we assessed the construct validity through two criteria: convergent and discriminant validity. All average variance extracted (AVE) values were greater than 0.5, confirming convergent validity. We tested the discriminant validity using the hetero-trait-monotrait ratio of correlations (HTMT) criterion. Discriminant validity between two constructs is established if the HTMT value between the constructs is less than that of the cut-off value of 0.85. The results show that the HTMT value of each pair of constructs among all the five constructs of the model is smaller than the cut-off value. The maximum HTMT value is 0.710. Therefore, discriminant validity was established (see Table 2).

The second-order constructs
Following the instructions suggested by Hair et al. (2017), we assessed the measurement model of the second-order constructs through three sequential steps: (1) the reliability was tested using Cronbach’s alpha, (2) the composite reliability and convergent validity were assessed using the average variance explained (AVE), and (3) the discriminant validity was tested using the HTMT method. All the criteria were fulfilled [hedonic motivations (Cronbach’s Alpha = 0.915, CR = 0.832, AVE = 0.712), utilitarian motivations (Cronbach’s Alpha = 0.902, CR = 0.799, AVE = 0.636), consumer brand engagement (Cronbach’s Alpha = 0.925, CR = 0.847, AVE = 0.670), and brand equity (Cronbach’s Alpha = 0.937, CR = 0.872, AVE = 0.634)]. Discriminant validity was established since the HTMT value is smaller than 1, except for interpersonal utility and hedonic benefits. This result is understandable because the measurement models of interpersonal utility are repeated as an indicator of hedonic benefits (Hair et al. 2017).

Assessment of the structural model
We assessed the structural model through two criteria suggested by Hair et al. (2013): coefficients of determination (R²) and path coefficients. In particular, the R² for task-service fit (37%), consumer brand engagement (13.7%), and brand equity (50%) indicate a weak and medium predictive power for the corresponding constructs.
Table 1. Factor loading and validity.

| Scale Items | Alpha | CR | AVE | AVE > Corr² | Loadings | Mean | SD | t-value |
|-------------|-------|----|-----|-------------|----------|------|----|---------|
| **Utilitarian motivations (Stocchi et al. 2018)** |       |    |     |             |          |      |    |         |
| Security    | 0.796 | 0.907 | 0.83 | 0.830 > 0.276 | 0.922 | 0.922 | 0.009 | 97.285 |
|             |       |    |     |             | 0.900 | 0.900 | 0.015 | 61.888 |
| Usefulness  | 0.935 | 0.959 | 0.885 | 0.885 > 0.230 | 0.917 | 0.917 | 0.013 | 68.090 |
|             |       |    |     |             | 0.956 | 0.956 | 0.006 | 154.355 |
|             |       |    |     |             | 0.949 | 0.949 | 0.008 | 121.095 |
| Ease of use | 0.809 | 0.887 | 0.724 | 0.724 > 0.289 | 0.864 | 0.864 | 0.019 | 44.525 |
|             |       |    |     |             | 0.857 | 0.856 | 0.024 | 35.528 |
|             |       |    |     |             | 0.831 | 0.832 | 0.024 | 34.609 |
| **Hedonic motivations (Stocchi et al. 2018)** |       |    |     |             |          |      |    |         |
| Interpersonal utility | 0.896 | 0.927 | 0.761 | 0.761 > 0.195 |          |      |    |          |
|             |       |    |     |             | 0.835 | 0.834 | 0.025 | 33.350 |
|             |       |    |     |             | 0.907 | 0.907 | 0.013 | 71.900 |
|             |       |    |     |             | 0.881 | 0.881 | 0.016 | 53.536 |
|             |       |    |     |             | 0.864 | 0.864 | 0.016 | 55.634 |
| Entertainment | 0.883 | 0.927 | 0.81 | 0.810 > 0.257 | 0.905 | 0.906 | 0.009 | 103.723 |
|             |       |    |     |             | 0.840 | 0.839 | 0.031 | 26.786 |
|             |       |    |     |             | 0.950 | 0.950 | 0.007 | 127.747 |
| **Brand equity (Yoo, Donthu, and Lee 2000)** |       |    |     |             |          |      |    |         |
| Perceived quality | 0.925 | 0.943 | 0.769 | 0.769 > 0.430 | 0.877 | 0.877 | 0.017 | 50.666 |
|             |       |    |     |             | 0.891 | 0.890 | 0.015 | 60.536 |
|             |       |    |     |             | 0.874 | 0.874 | 0.019 | 46.584 |
|             |       |    |     |             | 0.854 | 0.854 | 0.020 | 42.089 |
|             |       |    |     |             | 0.888 | 0.888 | 0.015 | 59.402 |
| Brand loyalty | 0.837 | 0.902 | 0.754 | 0.754 > 0.390 | 0.890 | 0.889 | 0.013 | 66.588 |
|             |       |    |     |             | 0.898 | 0.897 | 0.015 | 61.091 |
|             |       |    |     |             | 0.815 | 0.813 | 0.026 | 31.569 |
| Brand associations with brand awareness | 0.896 | 0.924 | 0.708 | 0.708 > 0.316 | 0.868 | 0.868 | 0.027 | 31.881 |
|             |       |    |     |             | 0.900 | 0.901 | 0.014 | 62.524 |
|             |       |    |     |             | 0.830 | 0.831 | 0.036 | 22.751 |
|             |       |    |     |             | 0.778 | 0.778 | 0.030 | 25.882 |
|             |       |    |     |             | 0.826 | 0.825 | 0.023 | 35.612 |
| Consumer brand engagement (Hollebeek, Glynn, and Brodie 2014) |       |    |     |             |          |      |    |         |
| Cognitive processing | 0.865 | 0.918 | 0.788 | 0.788 > 0.245 | 0.879 | 0.878 | 0.016 | 55.674 |

(Continued)
Table 1. (Continued).

| Scale Items                                                                 | Alpha | CR  | AVE | AVE > Corr² | Loadings | Mean | SD  | t-value |
|------------------------------------------------------------------------------|-------|-----|-----|-------------|----------|------|------|---------|
| I think about the brand a lot when I’m using this app.                       |       |     |     |             | 0.923    | 0.923| 0.011| 80.841  |
| Using this app stimulates my interest to learn more about the brand.         |       |     |     |             | 0.860    | 0.860| 0.020| 42.477  |
| **Affection factor**                                                         | 0.896 | 0.928| 0.765| 0.765 > 0.323|          |      |      |         |
| I feel very positive when I use this app.                                   |       |     |     |             | 0.836    | 0.835| 0.032| 26.073  |
| Using this app makes me happy.                                               |       |     |     |             | 0.912    | 0.912| 0.011| 80.717  |
| I feel good when I use this app.                                             |       |     |     |             | 0.928    | 0.928| 0.010| 89.460  |
| I’m proud to use this app.                                                   |       |     |     |             | 0.818    | 0.818| 0.024| 34.119  |
| **Activation factor**                                                        | 0.728 | 0.853| 0.665| 0.665 > 0.269|          |      |      |         |
| I spend a lot of time using this app, compared to other apps.               |       |     |     |             | 0.615    | 0.614| 0.046| 13.447  |
| Whenever I’m finding something with mobile apps, I usually use this app.    |       |     |     |             | 0.905    | 0.905| 0.014| 66.603  |
| This app is one of the apps I usually use when I use to find something with mobile apps. |       |     |     |             | 0.892    | 0.892| 0.016| 54.478  |
| **Task-service fit (Lin and Huang 2008)**                                    | 0.941 | 0.954| 0.775| 0.775 > 0.440|          |      |      |         |
| In helping me perform my shopping task(s), …                                 |       |     |     |             | 0.820    | 0.820| 0.026| 30.999  |
| Use of the branded app service is adequate                                   |       |     |     |             | 0.863    | 0.863| 0.025| 34.790  |
| Use of the branded app service is appropriate                                |       |     |     |             | 0.886    | 0.886| 0.019| 46.491  |
| Use of the branded app service is compatible with my task                    |       |     |     |             | 0.910    | 0.910| 0.011| 82.473  |
| Use of the branded app service is sufficient                                 |       |     |     |             | 0.927    | 0.927| 0.008| 114.314 |
| In general, the service of the branded app best fits the task                 |       |     |     |             | 0.870    | 0.870| 0.019| 44.777  |

Of the five hypotheses predicting main effects, four are supported. The relationship between hedonic motivations and task-service fit is not significant (β = 0.000, p > .05) (H4 is not supported). Yet, utilitarian motivations are positively associated with task-service fit (β = 0.609, p < .05) (H2 is supported), and task-service fit is positively associated with consumer brand engagement (β = 0.543, p < .05) (H3 is supported) and brand equity (β = 0.370, p < .05) (H4 is supported). Finally, consumer brand engagement is positively associated with brand equity (β = 0.296, p < .05) (H5 is supported). All the hypotheses are supported except for H1 (hedonic motivations -> task-service fit) (see Table 3).

**Mediation test**

Although it is not hypothesized, a potential mediation effect may exist regarding the influence of consumer brand engagement on the relationship between task-service fit and brand equity. Drawing on established guidelines (Hair et al. 2017), a mediation analysis was performed. The result showed that the direct effect on task-service fit on brand equity was significant [95% CI: 0.461; 0.616], while the total indirect effect was significant [95% CI: 0.072; 0.156]. Therefore, it was confirmed that consumer brand engagement partially mediates the relationship between task-service fit and brand equity (see Table 4).

In summary, we analyzed data collected from 292 branded app users in two phases: a measurement model and a structural model. The former showed how all the criteria used to measure the reliability, convergent validity, and discriminant validity were met, paving the
### Table 2. Testing discriminant validity using HTMT.

|     | ACT | AFF | BAA | BE  | CBE | COG | EAS | END | HED | LOY | QUA | SEC | TSF | USE | UTI | UTM |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ACT | 0.649 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| AFF | 0.326 | 0.358 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| BAA | 0.364 | 0.536 | 0.916 |     |     |     |     |     |     |     |     |     |     |     |     |     |
| BE  | 0.965 | 0.978 | 0.374 | 0.544 |     |     |     |     |     |     |     |     |     |     |     |     |
| CBE | 0.548 | 0.563 | 0.244 | 0.423 | 0.892 |     |     |     |     |     |     |     |     |     |     |     |
| COG | 0.228 | 0.370 | 0.631 | 0.671 | 0.335 | 0.203 |     |     |     |     |     |     |     |     |     |     |
| EAS | 0.605 | 0.585 | 0.281 | 0.290 | 0.571 | 0.228 | 0.210 |     |     |     |     |     |     |     |     |     |
| END | 0.562 | 0.461 | 0.199 | 0.236 | 0.496 | 0.230 | 0.193 | 0.878 |     |     |     |     |     |     |     |     |
| LOY | 0.402 | 0.649 | 0.522 | 0.873 | 0.645 | 0.508 | 0.421 | 0.321 | 0.252 |     |     |     |     |     |     |     |
| QUA | 0.246 | 0.444 | 0.615 | 0.961 | 0.448 | 0.389 | 0.604 | 0.174 | 0.177 | 0.704 |     |     |     |     |     |     |
| SEC | 0.111 | 0.278 | 0.376 | 0.553 | 0.296 | 0.322 | 0.485 | 0.192 | 0.246 | 0.422 | 0.591 |     |     |     |     |     |
| TSF | 0.180 | 0.428 | 0.537 | 0.693 | 0.394 | 0.323 | 0.578 | 0.154 | 0.170 | 0.475 | 0.710 | 0.602 |     |     |     |     |
| USE | 0.071 | 0.153 | 0.118 | 0.336 | 0.217 | 0.313 | 0.231 | 0.255 | 0.270 | 0.366 | 0.402 | 0.552 | 0.405 |     |     |     |
| UTI | 0.353 | 0.189 | 0.063 | 0.073 | 0.246 | 0.107 | 0.076 | 0.457 | 1.006 | 0.067 | 0.059 | 0.172 | 0.087 | 0.094 |     |     |
| UTM | 0.182 | 0.349 | 0.483 | 0.681 | 0.374 | 0.374 | 0.864 | 0.303 | 0.321 | 0.538 | 0.700 | 0.947 | 0.693 | 0.883 | 0.144 |     |

Note: TSF – task service fit, CBE – consumer brand engagement (including ACT – activation factor, AFF – affection factor, COG – cognitive processing), UTM – utilitarian motivation (including SEC – Security, USE – Usefulness, EAS – East of Use), HED – hedonic motivation (including UTI – interpersonal utility, DEV – device attachment, ENT – entertainment), BE – brand equity (including QUA – perceived quality, LOY – brand loyalty, BAA – brand association/awareness.)
way to move on to the later phase. The structural model results illustrate that all the hypotheses are supported except for H1 (hedonic benefits -> task-service fit). More specifically, the task-service fit is driven by utilitarian motivations, not hedonic ones. As noted earlier, when the task-service fit is viewed as the match between the task requirements and a specific service’s capability to meet those requirements (Fang 2017b), increasing the perceived value of the utilitarian features associated with an app also increases its task-service fit. Different from what was anticipated, the task-service fit is driven only by utilitarian features, which raises a question that challenges the appreciation of the role of hedonic motivations in the context of branded apps (Chen, Meservy, and Gillenson 2012; Scholz and Duffy 2018). As mentioned earlier, research has shown that customer enjoyment leads to the rapid acquisition of useful (task-oriented) information. For instance, a fun-filled feature of L’Oréal’s Makeup Genius app, with its facial recognition tool that allows its users to use their mobile phones as mirrors to virtually try out various L’Oréal makeup products, gives its users useful task-oriented information to use when purchasing the products (SmartDataCollective, 2015). However, this relationship is not significant in this study. A possible explanation could be that the boundary between utilitarian and hedonic features in the selected apps is unclear. Further, consistent with our prediction, task-service fit plays a critical role in both consumer brand engagement and brand equity in the branded app context.

Discussion

Theoretical implications

This paper offers several theoretical implications by investigating how two user motives (hedonic and utilitarian) translate into consumer brand equity and brand equity. First, it identifies that task-service fit can, directly and indirectly, predict brand equity through consumer brand engagement. Further, by exploring the context of mobile branded apps, we extend the knowledge on the strength of branded apps and how technology can help apps power brands by focusing on how consumers determine their conceptualization of ‘value’ and how companies use this awareness to garner brand equity (e.g., Fang 2019;
Stocchi et al. 2021). Consequently, we find that brand-loyal consumers consider their branded apps to be more than simple devices and acknowledge that through their interactive nature, branded apps deliver intangibles, which can drive brand equity.

Broadly, we illustrate the importance of utilitarian features as an integral strategy for building strong brand engagement and brand equity. Overall, we developed a model that captures how brand equity can be enhanced in a branded app setting. During the pursuit, we demonstrated the relative importance of the utilitarian versus hedonic motivations of branded apps. We suggest that utilitarian features are critical drivers of task-service fit, leading to stronger brand engagement and higher brand equity. Further, results from this study reinforce those of other studies that suggest that strong brand engagement can lead to higher consumer brand engagement (e.g., Machado et al. 2019). By testing this model, this study provides better insights into how interactions between companies and customers can be enhanced through branded apps.

Additionally, the paper sheds light on the mediation mechanism by showing that consumer brand engagement partially mediates the impact of task-service fit on brand equity. More specifically, task-service fit in the branded apps context enhances consumer brand engagement, which, in turn, strengthens brand equity. Finally, we contribute to the literature on utilitarian and hedonic motivations (Dhar and Wertenbroch 2000). One such contribution is that high brand engagement and brand equity are derived from task-service fit, primarily due to a branded app’s utilitarian features. To drive this brand equity, branded mobile app customers do not have to experience the highest level of intrinsic motivation, as suggested by self-determination theory and implied by the satisfaction of hedonic motives, but rather, they only have to be sufficiently motivated to find practical value in using the app. Accordingly, these findings from our theoretical model extend Wang and Li (2012) conclusion about the importance of having a strong utilitarian core product before adding more service-based hedonic features.

Lastly, the paper offers multiple theoretical insights with managerial relevance. These strategic implications are vital for creating an integrated marketing communication strategy, which leverages the apps as communication channels or potential touchpoints that enhance brand equity with regard to their users.

**Managerial implications**

First, like Fang (2019), we found that task-service fit positively influences brand equity. Thus, we encourage brand managers to focus on understanding why and how consumers use branded apps and ensuring that these apps provide appropriate assistance for achieving the identified tasks. To do so, managers should collect data, run data analyses, and develop strategies that will give them information on why and how the users use the apps. Utilizing this information in compliance with ethical guidelines, brands can tailor their apps to encourage task-service fit perceptions. Nike+ Run Club, for example, allows its users to choose their goals and offers a workout plan, which adapts itself based on users’ progress. The app thus provides a tailored service that supports task achievement.

Second, similar to Stocchi et al. (2018), our results show that utilitarian motivation significantly affects consumers’ perceptions of task-service fit. Because apps process, store, and transmit sensitive data, brands should implement protective measures, such as writing a secure code and implementing multi-factor authentication. In addition, they should
continuously communicate their security measures. From a usefulness standpoint, apps should help make their users’ daily lives easier. Allowing the placement of orders and the tracking of deliveries are among the many usefulness-enhancing opportunities. Moreover, apps’ interfaces should be simple as mobile phones have limited screen sizes (Ozturk et al. 2016; Stocchi et al. 2018). Furthermore, app designers can include a guide video or a short introductory tour of the app’s features. App quality goes hand in hand with utility. Good quality apps run smoothly, respond quickly, and deliver reliable utility (e.g., Xu-Priour 2015).

Third, we found that hedonic motivations, such as entertainment and interpersonal utility (Hsiao, Chang, and Tang 2016; Xu-Priour 2015), do not significantly influence consumers’ perceptions of task-service fit. One possible explanation for this discovery is that tasks in the task-service fit model mainly refer to functional or operational activities, such as finding information, shopping, or reviewing businesses. Hedonic motivations are non-functional or emotional. Thus, positive perceptions of hedonic motivations among our respondents did not increase their perceptions of how well the branded app supported accomplishing the tasks. Based on our findings, hedonic motivations are presumably of a lower priority to app developers, who have limited resources.

Next, our findings illustrate that when using apps that are appropriate and useful for accomplishing tasks, users develop certain cognitive and emotional connections with them and continue using them. This finding matches those of Fang (2017b), who suggested that users continue utilizing an app if it fits their search and shopping job demands. This is significant as engaging users is the ultimate goal of every brand creating an app. We already mentioned the suggestions for enhancing the task-service fit and utility perceptions, which ultimately translate into brand engagement. To support such engagement further, apps can reward their loyal users with bonus points, coupons, special deals, and discounts.

Finally, an effective mobile marketing strategy can set a firm apart in the competitive landscape of a technology-driven age and mobile marketing should be developed as part of integrated marketing communication solutions. Using this approach firms can integrate various tools and employ communication channels, including mobile content, to deliver a clear and consistent message about its product and brand.

**Limitations and future research**

Despite the theoretical and managerial implications, there are a few limitations. First, students are used. Although students are frequent users of branded apps and customers that are often used to evaluate brand equity (Tran et al. 2020; Tran, Mai, and Taylor 2021; Tran, Furner, and Gugenishvili 2022), future researchers should pay more attention to populations beyond students. Data from broader groups of people would help make the findings more generalizable. Second, most of the branded apps mentioned in this study are free, while the percentage of purchased apps is very meager. Although the study results could provide critical information for free app developers, purchase app developers should apply the results with caution because the two types of apps attract different customers. Therefore, future research should consider the two types of apps as the results of that research could benefit management (Tran et al. 2022).

Further, we conducted research in a cross-sectional nature. Hence, the results of this study cannot be used to evaluate the effects of marketing efforts over time, which is indeed
desirable when measuring brand equity. Therefore, a longitudinal analysis is strongly encouraged in the future to promote a better understanding of the relationships. Additionally, we collected data exclusively in the United States, and the findings could be specific to this market. Future researchers are encouraged to study different cultures and territories. As Soares, Farhangmehr, and Shoham (2007) suggest, each nation’s typical cultural orientation and individual behaviors could vary accordingly. Findings from future cross-cultural research will provide valuable lessons for developing branded apps in the global market.

Finally, the fact that task-service fit is driven only by utilitarian features raises a question that challenges the appreciation of the role of hedonic motivations in the context of branded apps (Chen, Meservy, and Gillenson 2012; Scholz and Duffy 2018). A possible explanation could be that the boundary between utilitarian and hedonic features in the selected apps is unclear. Hence, future research could apply a different method, preferably an experimental design, where two scenarios are created, each focusing on one type of feature (utilitarian vs. hedonic). That way, the results would be more representative.

Disclosure statement

The authors have no relevant financial or non-financial interests to disclose.

Notes on contributors

Trang P. Tran (Ph.D., University of North Texas) is Assistant Professor of Marketing at East Carolina University. His research interests include international marketing, customer behavior, and service marketing. He has been accepted or published in the Journal of Macromarketing, Journal of Business Research, Journal of Consumer Marketing, Journal of Retailing and Consumer Services, among others. His name also appeared in several proceedings of the American Marketing Association, Academy of Marketing Science, Society of Marketing Advances, Association of Marketing Theory and Practice, and Decision Science Institute.

Ilia Gugenishvili (Ph.D., Åbo Akademi University) is a Researcher in International Marketing at the Åbo Akademi University, Turku, Finland. His research interests include mobile applications, engagement, consumer behavior, culture, and social psychology. Ilia has publications in the Journal of Consumer Behavior, International Journal of E-Services and Mobile Applications, and Voluntary Sector Review, among others. His name also appears in conference proceedings at the Association of Marketing Theory and Practice and International Telecommunications Society.

Adrienne F. Muldrow (Ph.D., Washington State University) is an Assistant Professor of Communication at East Carolina University. Her research interests include advertising and consumer behavior with a focus on social media, digital media, and health. She has been published in the Journal of Business Research, Journal of Health Communication, Health Communication, among others. Her name has appeared in several proceedings of the Marketing and Public Policy, and conferences, including the International Communication Association and Education in Journalism and Mass Communication.

ORCID

Trang P. Tran [12] http://orcid.org/0000-0001-9000-044X
Ilia Gugenishvili [15] http://orcid.org/0000-0002-7657-9149
Adrienne F. Muldrow [15] http://orcid.org/0000-0003-3519-3343
Data availability statement

The data that support the findings of this study are available from the corresponding author, Trang P. Tran, upon reasonable request.

References

Aaker, D. A. 1991. Managing Brand Equity: Capitalizing on the Value of a Brand Name, (pp. 247-248). New York, NY: The Free Press.

Abu Elsam, A. A. 2016. “Building Mobile Brand Equity: The Mediating Roles of Perceived Values.” Journal of Internet Commerce 15 (4): 376–389. doi:10.1080/15332861.2016.1237231.

Ahmed, R., F. Beard, and D. Yoon 2016. “Examining and Extending Advertising’s Dual Mediation Hypothesis to a Branded Mobile Phone App.” Journal of Interactive Advertising 16 (2): 133–144. doi:10.1080/15252019.2016.1237315.

Baalbaki, S., and F. Guzmán 2016. “A Consumer-Perceived Consumer-Based Brand Equity Scale.” Journal of Brand Management 23 (3): 229–251. doi:10.1057/bm.2016.11.

Babin, B. J., W. R. Darden, and M. Griffith 1994. “Work And/or Fun: Measuring Hedonic and Utilitarian Shopping Value.” The Journal of Consumer Research 20 (4): 644–656. doi:10.1086/209376.

Batra, R., and O. T. Ahtola 1991. “Measuring the Hedonic and Utilitarian Sources of Consumer Attitudes.” Marketing Letters 2 (2): 159–170. doi:10.1007/BF00436035.

Bellman, S., R. F. Potter, S. Treleaven-Hassard, J. A. Robinson, and D. Varan 2011. “The Effectiveness of Branded Mobile Phone Apps.” Journal of Interactive Marketing 25 (4): 191–200. doi:10.1016/j.intmar.2011.06.001.

Bhattacherjee, A. 2001. “Understanding Information Systems Continuance: An Expectation-Confirmation Model.” MIS Quarterly 25 (3): 351–370. doi:10.2307/3250921.

Boyd, D. E., P. Kannan, and R. J. Slotegraaf 2019. “Branded Apps and Their Impact on Firm Value: A Design Perspective.” Journal of Marketing Research 56 (1): 76–88. doi:10.1177/0022243718820588.

Chaudhuri, A. 1995. “Brand Equity or Double Jeopardy?” Journal of Product & Brand Management 4 (1): 26–32. doi:10.1108/10610429510083730.

Chen, L., T. O. Meservy, and M. Gillenson 2012. “Understanding Information Systems Continuance for Information-Oriented Mobile Applications.” Communications of the Association for Information Systems 30 (1): 127–146. doi:10.17705/1CAIS.03009.

Cheng, L. K., H.-L. Huang, and C.-C. Lai 2021. “Continuance Intention in Running Apps: The Moderating Effect of Relationship Norms.” International Journal of Sports Marketing and Sponsorship 23 (1): 132–154.

Davcik, N. S., R. V. Da Silva, and J. F. Hair 2015. “Towards a Unified Theory of Brand Equity: Conceptualizations, Taxonomy and Avenues for Future Research.” Journal of Product & Brand Management 24 (1): 3–17. doi:10.1108/JPBM-06-2014-0639.

Davis, F. D., R. P. Bagozzi, and P. R. Warshaw 1992. “Extrinsic and Intrinsic Motivation to Use Computers in the Workplace.” Journal of Applied Social Psychology 22 (14): 1111–1132. doi:10.1111/j.1559-1816.1992.tb00945.x.

Deci, E. L., and R. M. Ryan 1985. “The General Causality Orientations Scale: Self-Determination in Personality.” Journal of Research in Personality 19 (2): 109–134. doi:10.1016/0092-6566(85)90023-6.

Dhar, R., and K. Wertenbroch 2000. “Consumer Choice Between Hedonic and Utilitarian Goods.” Journal of Marketing Research 37 (1): 60–71. doi:10.1509/jmkr.37.1.60.18718.

Dodds, W. B. 2002. “The Effects of Perceived and Objective Market Cues on Consumers’ Product Evaluations.” Marketing Bulletin 13 (2): 1–14.

Dwivedi, A., L. W. Johnson, and R. E. McDonald 2015. “Celebrity Endorsement, Self-Brand Connection and Consumer-Based Brand Equity.” Journal of Product & Brand Management 24 (5): 449–461. doi:10.1108/JPBM-10-2014-0722.
Ekizler, H. 2019. “How to Satisfy Mobile Application Users and Increase Their Brand Equity Perceptions?” Marmara University Journal of Economic & Administrative Sciences 41 (1): 126–144.

Fang, Y.-H. 2017a. “Beyond the Usefulness of Branded Applications: Insights from Consumer–brand Engagement and Self-constructual Perspectives.” Psychology & Marketing 34 (1): 40–58. doi:10.1002/mar.20972.

Fang, Y.-H. 2017b. “Exploring Task-Service Fit and Usefulness on Branded Applications Continuance.” Journal of Services Marketing 31 (6): 574–588. doi:10.1108/JSM-07-2016-0256.

Fang, Y.-H. 2019. “An App a Day Keeps a Customer Connected: Explicating Loyalty to Branded Applications Through the Lens of Affordance and Service-Dominant Logic.” Information & Management 56 (3): 377–391. doi:10.1016/j.im.2018.07.011.

Fernandes, T., and M. Moreira 2019. “Consumer Brand Engagement, Satisfaction and Brand Loyalty: A Comparative Study Between Functional and Emotional Brand Relationships.” Journal of Product & Brand Management 28 (2): 274–286. doi:10.1108/JPBM-08-2017-1545.

Gilal, F. G., J. Zhang, J. Paul, and N. G. Gilal 2019. “The Role of Self-Determination Theory in Marketing Science: An Integrative Review and Agenda for Research.” European Management Journal 37 (1): 29–44. doi:10.1016/j.emj.2018.10.004.

Gill, M., S. Sridhar, and R. Grewal 2017. “Return on Engagement Initiatives: A Study of a Business-To-Business Mobile App.” Journal of Marketing 81 (4): 45–66. doi:10.1509/jm.16.0149.

Gürhan-Canli, Z., C. Hayran, and G. Sarial-Abi 2016. “Customer-Based Brand Equity in A technologically Fast-Paced, Connected, and Constrained Environment.” AMS Review 6 (1): 23–32. doi:10.1007/s13162-016-0079-y.

Hair, J. F., C. M. Ringle, and M. Sarstedt. 2013. “Partial Least Squares Structural Equation Modeling: Rigorous Applications, Better Results and Higher Acceptance.” Long Range Planning 46 (1–2): 1–12.

Hair, J. F., M. Sarstedt, T. M. Pieper, and C. M. Ringle 2012. “The Use of Partial Least Squares Structural Equation Modeling in Strategic Management Research: A Review of Past Practices and Recommendations for Future Applications.” Long Range Planning 45 (5–6): 320–340. doi:10.1016/j.lrp.2012.09.008.

Hair, J. F., Jr, M. Sarstedt, C. M. Ringle, and S. P. Gudergan 2017. Advanced Issues in Partial Least Squares Structural Equation Modeling. Thousand Oaks, CA.: SAGE publications.

Hamilton, M., V. D. Kaltcheva, and A. J. Rohm 2016. “Hashtags and Handshakes: Consumer Motives and Platform Use in Brand-Consumer Interactions.” Journal of Consumer Marketing 33 (2): 135–144. doi:10.1108/JCM-04-2015-1398.

Hepola, J., H. Karjaluoto, and A. Hintikka 2017. “The Effect of Sensory Brand Experience and Involvement on Brand Equity Directly and Indirectly Through Consumer Brand Engagement.” Journal of Product & Brand Management 26 (3): 282–293. doi:10.1108/JPBM-10-2016-1348.

Hollebeek, L. D., M. S. Glynn, and R. J. Brodie 2014. “Consumer Brand Engagement in Social Media: Conceptualization, Scale Development and Validation.” Journal of Interactive Marketing 28 (2): 149–165. doi:10.1016/j.intmar.2013.12.002.

Hollebeek, L. D., R. K. Srivistava, and T. Chen 2019. “SD Logic-informed Customer Engagement: Integrative Framework, Revised Fundamental Propositions, and Application to CRM.” Journal of the Academy of Marketing Science 47 (1): 161–185. doi:10.1007/s11747-016-0494-5.

Hsiao, C.-H., J.-J. Chang, and K.-Y. Tang 2016. “Exploring the Influential Factors in Continuance Usage of Mobile Social Apps: Satisfaction, Habit, and Customer Value Perspectives.” Telematics and Informatics 33 (2): 342–355. doi:10.1016/j.tele.2015.08.014.

Jaakkola, E., and M. Alexander 2014. “The Role of Customer Engagement Behavior in Value Co-Creation: A Service System Perspective.” Journal of Service Research 17 (3): 247–261. doi:10.1177/1094670514529187.

Jöreskog, K. G. 1978. “Structural Analysis of Covariance and Correlation Matrices.” Psychometrika 43 (4): 443–477. doi:10.1007/BF02293808.

Jöreskog, K. G., and D. Sörbom 1982. “Recent Developments in Structural Equation Modeling.” Journal of Marketing Research 19 (4): 404–416. doi:10.1177/002224378201900402.
Jung, Y. 2014. “What a Smartphone is to Me: Understanding User Values in Using Smartphones.” Information Systems Journal 24 (4): 299–321. doi:10.1111/isj.12031.

Kaur, H., M. Paruthi, J. Islam, and L. D. Hollebeek 2020. “The Role of Brand Community Identification and Reward on Consumer Brand Engagement and Brand Loyalty in Virtual Brand Communities.” Telematics and Informatics 46: 101321. doi:10.1016/j.tele.2019.101321.

Khomyck, A. (2020). 3 Ways to Reduce Mobile App’s Uninstall Rate by Improving User Engagement. https://www.moengage.com/blog/3-ways-to-reduce-mobile-app-uninstalls/#:text=Recent%20statistics%20show%20that%20as,happens%20during%20the%20first%20month.

Kim, E., J.-S. Lin, and Y. Sung 2013. “To App or Not to App: Engaging Consumers via Branded Mobile Apps.” Journal of Interactive Advertising 13 (1): 53–65. doi:10.1080/15252019.2013.782780.

Kumar, S., and C. Zahn 2003. “Mobile Communications: Evolution and Impact on Business Operations.” Technovation 23 (6): 515–520. doi:10.1016/S0166-4972(02)00120-7.

Li, C.-Y., and Y.-H. Fang 2019. “Predicting Continuance Intention Toward Mobile Branded Apps Through Satisfaction and Attachment.” Telematics and Informatics 43 (8): 101248. doi:10.1016/j.tele.2019.101248.

Lin, T.-C., and C.-C. Huang 2008. “Understanding Knowledge Management System Usage Antecedents: An Integration of Social Cognitive Theory and Task Technology Fit.” Information & Management 45 (6): 410–417. doi:10.1016/j.im.2008.06.004.

Lohmöller, J.-B. 2013. Latent Variable Path Modeling with Partial Least Squares. Heidelberg: Physica: Springer Science & Business Media.

Lu, A. C. C., D. Gursoy, and C. Y. Lu 2015. “Authenticity Perceptions, Brand Equity and Brand Choice Intention: The Case of Ethnic Restaurants.” International Journal of Hospitality Management 50 (9): 36–45. doi:10.1016/j.ijhm.2015.07.008.

Lusch, R. F., and S. L. Vargo 2006. “Service-Dominant Logic: Reactions, Reflections and Refinements.” Marketing Theory 6 (3): 281–288. doi:10.1177/1470593106066781.

Machado, J. C., L. Vacas-de-Carvalho, S. L. Azar, A. R. André, and B. P. dos Santos 2019. “Brand Gender and Consumer-Based Brand Equity on Facebook: The Mediating Role of Consumer-Brand Engagement and Brand Love.” Journal of Business Research 96 (3): 376–385. doi:10.1016/j.jbusres.2018.07.016.

Mobile Marketing Association. (2015). The Impact of Mobile Marketing on Retailer Sales. https://www.mmaglobal.com/research/impact-mobile-marketing-retailer-sales

Obilo, O. O., E. Chefor, and A. Saleh 2021. “Revisiting the Consumer Brand Engagement Concept.” Journal of Business Research 126: 634–643. doi:10.1016/j.jbusres.2019.12.023.

Oh, T. T., K. L. Keller, S. A. Neslin, D. J. Reibstein, and D. R. Lehmann 2020. “The Past, Present, and Future of Brand Research.” Marketing Letters 31: 151–162. doi:10.1007/s11002-020-09524-w.

Oliveira, T., M. Faria, M. A. Thomas, and A. Popović 2014. “Extending the Understanding of Mobile Banking Adoption: When UTAUT Meets TTF and ITM.” International Journal of Information Management 34 (5): 689–703. doi:10.1016/j.ijinfomgt.2014.06.004.

Oliver, R. L. 1997. Satisfaction: A Behavioral Perspective on the Consumer. New York: McGraw-Hill.

Ozturk, A. B., K. Nusair, F. Okumus, and N. Hua 2016. “The Role of Utilitarian and Hedonic Values on Users’ Continued Usage Intention in a Mobile Hotel Booking Environment.” International Journal of Hospitality Management 57: 106–115. doi:10.1016/j.ijhm.2016.06.007.

Pappu, R., P. G. Quester, and R. W. Cooksey 2005. “Consumer-based Brand Equity: Improving the Measurement—empirical Evidence.” Journal of Product & Brand Management 14 (3): 143–154. doi:10.1108/10610420510601012.

Peltier, J. W., J. A. Schibrowsky, and D. E. Schultz 2003. “Interactive Integrated Marketing Communication: Combining the Power of IMC, the New Media and Database Marketing.” International Journal of Advertising 22 (1): 93–115. doi:10.1080/02650487.2003.11072841.

Pour, M. J., and Z. Kazemi 2020. “Investigating Determinants of Brand Equity in Mobile Commerce.” International Journal of Business Innovation and Research 22 (2): 243–261. doi:10.1504/IJBIR.2020.107842.

Qing, T., and D. Haiying 2021. “How to Achieve Consumer Continuance Intention Toward Branded Apps—from the Consumer–brand Engagement Perspective.” Journal of Retailing and Consumer Services 60: 102486. doi:10.1016/j.jretconser.2021.102486.
Rezvani, A., P. Khosravi, and L. Dong 2017. “Motivating Users Toward Continued Usage of Information Systems: Self-Determination Theory Perspective.” *Computers in Human Behavior* 76: 263–275. doi:10.1016/j.chb.2017.07.032.

Ringle, C. M., S. Wende, and J.-M. Becker 2014. “SmartPls 3.” *Academy of Management Review, Hamburg*. https://www.smartpls.com/.

Ryan, R. M., and E. L. Deci 2000. “Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions.” *Contemporary Educational Psychology* 25 (1): 54–67. doi:10.1006/ceps.1999.1020.

Sánchez-Fernández, R., and M. Á. Iniesta-Bonillo 2007. “The Concept of Perceived Value: A Systematic Review of the Research.” *Marketing Theory* 7 (4): 427–451. doi:10.1177/1470593107083165.

Sarstedt, M., C. M. Ringle, D. Smith, R. Reams, and J. F. hairsJr 2014. “Partial Least Squares Structural Equation Modeling (PLS-SEM): A Useful Tool for Family Business Researchers.” *Journal of Family Business Strategy* 5 (1): 105–115. doi:10.1016/j.jfbs.2014.01.002.

Schiff, J. L. (2015). 9 Ways Mobile and Social Tech Improves the Retail Shopping Experience. https://www.cio.com/article/2946057/9-ways-mobile-and-social-tech-improves-the-retail-shopping-experience.html

Schoenbachler, D. D., and G. L. Gordon 2002. “Multi-channel Shopping: Understanding What Drives Channel Choice.” *Journal of Consumer Marketing* 19 (1): 42–53. doi:10.1108/07363760210414943.

Scholz, J., and K. Duffy 2018. “We are at Home: How Augmented Reality Reshapes Mobile Marketing and Consumer-Brand Relationships.” *Journal of Retailing and Consumer Services* 44: 11–23. doi:10.1016/j.jretconser.2018.05.004.

Shabbir, M. Q., A. A. Khan, and S. R. Khan 2017. “Brand Loyalty Brand Image and Brand Equity: The Mediating Role of Brand Awareness.” *International Journal of Innovation and Applied Studies* 19 (2): 416–423.

SmartData Collective. 2015. 14 Brands Using Mobile Apps Instead of Ads to Build Customer Loyalty. SmartData Collective. https://www.smartdatacollective.com/14-brands-using-mobile-apps-instead-ads-build-customer-loyalty/.

Smutkupt, P., D. Krarit, and D. B. Khang 2012. “Mobile Marketing and Consumer Perceptions of Brand Equity.” *Asia Pacific Journal of Marketing and Logistics* 24 (4): 539–560. doi:10.1108/13558511211259016.

Soares, A. M., M. Farhangmehr, and A. Shoham 2007. “Hofstede’s Dimensions of Culture in International Marketing Studies.” *Journal of Business Research* 60 (3): 277–284. doi:10.1016/j.jbusres.2006.10.018.

Stocchi, L., C. Guerini, and N. Michaelidou 2017. “When are Apps Worth Paying For?: How Marketers Can Analyze the Market Performance of Mobile Apps.” *Journal of Advertising Research* 57 (3): 260–271. doi:10.2501/JAR-2017-035.

Stocchi, L., G. Ludwichowska, R. Fuller, and A. Gregoric 2021. “Customer-Based Brand Equity for Branded Apps: A Simple Research Framework.” *Journal of Marketing Communications* 27 (5): 534–563. doi:10.1080/13527266.2020.1752775.

Stocchi, L., N. Michaelidou, and M. Micevski 2019. “Drivers and Outcomes of Branded Mobile App Usage Intention.” *Journal of Product & Brand Management* 28 (1): 28–49. doi:10.1108/JPBM-02-2017-1436.

Stocchi, L., N. Michaelidou, N. Pourazad, and M. Micevski 2018. “The Rules of Engagement: How to Motivate Consumers to Engage with Branded Mobile Apps.” *Journal of Marketing Management* 34 (13–14): 1196–1226. doi:10.1080/0267257X.2018.1544167.

Stocchi, L., N. Pourazad, and N. Michaelidou 2020. “Identification of Two Decision-making Paths Underpinning the Continued Use of Branded Apps.” *Psychology & Marketing* 37 (10): 1362–1377. doi:10.1002/mark.21385.

Su, J., and X. Tong 2015. “Brand Personality and Brand Equity: Evidence from the Sportswear Industry.” *Journal of Product & Brand Management* 24 (2): 124–133. doi:10.1108/JPBM-01-2014-0482.

Swaminathan, V., A. Sorescu, J.-B. E. Steenkamp, T. C. G. O’Guinn, and B. Schmitt 2020. “Branding in a Hyperconnected World: Refocusing Theories and Rethinking Boundaries.” *Journal of Marketing* 84 (2): 24–46. doi:10.1177/0022242919899905.
Swenson, J. (2020). 6 Companies With Innovative, Engaging Mobile Apps. https://mentormate.com/blog.brands-successful-mobile-apps/

Synchrony. (2018). Retail Consumers Adopt New Technology. The 2018 Synchrony Digital Study Uncovers the Evolving Landscape of Digital Shopping and Payments. https://www.synchrony.com/retail-consumers-adopt-new-technology

Tarute, A., S. Nikou, and R. Gatautis 2017. “Mobile Application Driven Consumer Engagement.” *Telematics and Informatics* 34 (4): 145–156. doi:10.1016/j.tele.2017.01.006.

Tran, T. P., C. P. Furner, and I. Gugenishvili 2022. “The Effects of Task Service Fit on Brand Loyalty: A Study of Branded Apps.” *International Journal of E-Services and Mobile Applications (IJEYMA)* 14 (1): 1–19. doi:10.4018/IJEYMA.285545.

Tran, T. P., C. W. Lin, S. Baalbaki, and F. Guzmán 2020. “How Personalized Advertising Affects Equity of Brands Advertised on Facebook? a Mediation Mechanism.” *Journal of Business Research* 120: 1–15. doi:10.1016/j.jbusres.2020.06.027.

Tran, T. P., E. S. Mai, and E. C. Taylor 2021. “Enhancing Brand Equity of Branded Mobile Apps via Motivations: A Service-Dominant Logic Perspective.” *Journal of Business Research* 125: 239–251. doi:10.1016/j.jbusres.2020.12.029.

Tran, T. P., M. May, and C. M. Kowalczyk 2022. “Understanding Key Factors Motivating Customers to Purchase Brands via Brand Apps: A Service Dominant Logic Perspective.” *Services Marketing Quarterly* 43 (1): 67–86. doi:10.1080/15332969.2021.1997503.

Valavi, P. 2014. “Factors Influencing Mobile Services Adoption: A Brand-Equity Perspective.” *International Journal of Research in Social Sciences* 4 (3): 1–18.

van Noort, G., and E. A. Van Reijmersdal 2019. “Branded Apps: Explaining Effects of Brands’ Mobile Phone Applications on Brand Responses.” *Journal of Interactive Marketing* 45 (2): 16–26. doi:10.1016/j.intmar.2018.05.003.

Veloutsou, C., and F. Guzman 2017. “The Evolution of Brand Management Thinking Over the Last 25 Years as Recorded in the Journal of Product and Brand Management.” *Journal of Product & Brand Management* 26 (1): 2–12. doi:10.1108/JPBM-01-2017-1398.

Villalobos-Zúñiga, G., and M. Cherubini 2020. “Apps That Motivate: A Taxonomy of App Features Based on Self-Determination Theory.” *International Journal of Human-Computer Studies* 140: 102449. doi:10.1016/j.ijhcs.2020.102449.

Viswanathan, V., L. D. Hollebeek, E. C. Malthouse, E. Maslowska, S. Jung Kim, and W. Xie 2017. “The Dynamics of Consumer Engagement with Mobile Technologies.” *Service Science* 9 (1): 36–49. doi:10.1287/serv.2016.0161.

Wang, B., S. Kim, and E. C. Malthouse 2016. “Branded Apps and Mobile Platforms as New Tools for Advertising.” In *The New Advertising: Branding, Content, and Consumer Relationships in the Data-Driven Social Media Era*, edited by R. Brown, J. Valerie, & M. W. Bryan, 123–156. Vol. 2. Santa Barbara, CA: Praeger.

Wang, W.-T., and H.-M. Li 2012. “Factors Influencing Mobile Services Adoption: A Brand-Equity Perspective.” *Internet Research: Electronic Networking Applications and Policy* 22 (2): 142–179. doi:10.1108/10662241211214548.

Xu-Priour, D. L. 2015. “Effects of National Culture on Attitude Toward Online Shopping: Two Country Individual and National Cultural Comparison.” In *Marketing Dynamism & Sustainability: Things Change, Things Stay the Same . . .*, edited by L. Robinson, 706–709, New York, U.S.A.: Springer.

Xu, C., D. Peak, and V. Prybutok 2015. “A Customer Value, Satisfaction, and Loyalty Perspective of Mobile Application Recommendations.” *Decision Support Systems* 79: 171–183. doi:10.1016/j.dss.2015.08.008.

Yang, K., and H. Lee 2010. “Gender Differences in Using Mobile Data Services: Utilitarian and Hedonic Value Approaches.” *Journal of Research in Interactive Marketing* 4 (2): 142–156. doi:10.1108/17505931011051678.

Yang, S., Y. Lu, Y. Chen, and S. Gupta 2015. “Understanding Consumers’ Mobile Channel Continuance: An Empirical Investigation of Two Fitness Mechanisms.” *Behaviour & Information Technology* 34 (12): 1135–1146. doi:10.1080/0144929X.2014.988176.
Yoo, B., and N. Donthu 2001. “Developing and Validating a Multidimensional Consumer-Based Brand Equity Scale.” Journal of Business Research 52 (1): 1–14. doi:10.1016/S0148-2963(99)00098-3.

Yoo, B., N. Donthu, and S. Lee 2000. “An Examination of Selected Marketing Mix Elements and Brand Equity.” Journal of the Academy of Marketing Science 28 (2): 195–211. doi:10.1177/00920703002802002.

Yuan, S., Y. Liu, R. Yao, and J. Liu 2016. “An Investigation of Users’ Continuance Intention Towards Mobile Banking in China.” Information Development 32 (1): 20–34. doi:10.1177/026666914522140.

Zeithaml, V. A. 1988. “Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence.” Journal of Marketing 52 (3): 2–22. doi:10.1177/002224298805200302.

Zhao, Z., and C. Balagué 2015. “Designing Branded Mobile Apps: Fundamentals and Recommendations.” Business Horizons 58 (3): 305–315. doi:10.1016/j.bushor.2015.01.004.

Zhu, H., H. Xiong, Y. Ge, and E. Chen (2014). Mobile App Recommendations with Security and Privacy Awareness. 20th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 951–960. https://www.researchgate.net/publication/266660459_Mobile_app_recommendations_with_security_and_privacy_awareness

Zia, A., S. Younus, and F. Mirza 2021. “Investigating the Impact of Brand Image and Brand Loyalty on Brand Equity: The Mediating Role of Brand Awareness.” International Journal of Innovation, Creativity and Change 15 (2): 1091–1106.

**Appendix**

The List of Selected Apps

| Apps               | Count | %  |
|--------------------|-------|----|
| Amazon             | 61    | 21%|
| Canvas Student     | 34    | 12%|
| TikTok             | 29    | 10%|
| Instagram          | 26    | 9% |
| Snapchat           | 26    | 9% |
| Facebook           | 22    | 8% |
| Wells Fargo        | 14    | 5% |
| Google Map         | 9     | 3% |
| Netflix            | 9     | 3% |
| Ebay               | 8     | 3% |
| The Weather Channel| 8     | 3% |
| Bank of America    | 7     | 2% |
| Twitter            | 7     | 2% |
| Youtube            | 6     | 2% |
| Discord            | 5     | 2% |
| Candy Crush        | 4     | 1% |
| ESPN Fantasy Sports| 3     | 1% |
| Geico Mobile       | 2     | 1% |
| Skype              | 2     | 1% |
| Tinder             | 2     | 1% |
| Clash of Clans     | 1     | 0% |
| Dominos            | 1     | 0% |
| Google Translate   | 1     | 0% |
| Michaels App       | 1     | 0% |
| PNC                | 1     | 0% |
| Robinhood          | 1     | 0% |
| State Employees Credit Union | 1 | 0% |
| Weather Channel    | 1     | 0% |